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Original Lectures.

ARTICLE I.

A CLINICAL LECTURE ON TUBERCULAR LEPROSY, delivered at the Dermatological and Venereal Clinic, Rush Medical College, Sept. 29, 1878, by JAMES NEVINS HYDE. Reported by Mr. Philip Leach.

GENTLEMEN :— For the patient whom you see before you, we are indebted to Dr. M. Youngstedt, of this city, who is present and gives us the following history of the case: Peter Nansen, age, 43 years; native of Angermanland. In this part of Sweden, there are men and women affected with a disease somewhat similar to that from which he now suffers, of whose nature he is quite ignorant. He remembers that the medical men of his native town were required to report to the proper authorities, all cases of this peculiar malady which came under their observation.

With regard to his own family history, he informs us that his father had some species of sore on the leg, the result of an injury, but that this parent survived till his 76th year. Our patient

does not believe that the former was affected with the disorder from which he himself is suffering. His mother was always healthy, but one of his brothers when ten years of age, had a small brownish "spot" appear upon the surface of his body, which degenerated into an ulcer, and which subsequently required his removal to a hospital, where he died in his 22d year.

A second brother came to America, and died after exhibiting symptoms of similar character.

He states that he was married to a wife of his own nationality while residing in Sweden, and that they have had seven children born to them. The record of these is as follows:

1. Boy. Died in his 2d year, of "heart disease."
2. Boy. Died, 6th year, of "pneumonia."
3. Boy. Died, 3d month, of "croup."
4. Boy. Died, 2d year, of "croup."

These children were all born in Sweden. The following were born in America:

5. Girl. Living, in good health.
6. Girl. Living in her parents' home. She has from ten to fifteen "lumps" on her legs, similar to those which we shall observe in the case of the father. I think it proper for reasons which I will furnish later, to give her name in full, Lydia Margherita Nanzen.

7. Girl. Living in good health.

Our patient and his wife came to this country in October, 1868, eleven years ago. They first visited Omaha, but, remaining there for a short time only, settled finally upon a farm in Wahoo, Sanders county, Nebraska, where they are at present, comfortably and happily engaged in the healthful occupations of farm life.

As to his personal history, our patient informs us that he has never had a venereal disease of any kind, and that, with the single exception of a temporary illness accompanied by severe headache, with which he was seized at the time of his first coming to this country, he has always enjoyed excellent health up to the onset of his present disorder.

About five years ago, without the previous occurrence of chills, malaise or perverted sensation, he discovered a small "lump" on

the superior and internal face of the right thigh, which still persists. Others followed in its near vicinity. Later, similar "lumps" appeared upon the forehead and arms. Meantime, his voice became husky, and he noticed that "lumps" similar to those upon the surface of the skin, could be seen in the throat. During the time which has elapsed since the appearance of the tubercles, he has gradually become weak. He is unable to work as much as formerly, and even locomotion is at times prostrating. His appetite is variable; his dejections, normal; the acuteness of the sense of taste and smell, somewhat diminished. He has correspondingly lost in weight. There has been an occasional feeling of numbness in the left leg with swelling of the hands, but never at any time, pricking or tingling sensations in any part of the body.

He has been under the charge of several "physicians," who have treated him for "scrofula." Under the advice of one of these gentlemen, he took the iodide of potassium for one year and a half, with scarcely appreciable effect. For the last two years, however, he informs me that he has been incapable of effecting sexual intercourse. Another "physician" removed one of the "lumps" on the forehead with the knife, but the little tumor did not fail to re-appear in precisely the same locality. Still another determined to destroy the lesions with caustic, but had no better success than had those who had experimented before him. I suppose that it is hardly necessary to state that these men all promised him relief. He is inclined to believe that when he was under the influence of arsenic, he was temporarily improved.

Let us now examine his condition for ourselves. You all see that he is a well-developed man, with an abundance of light brown hair on the scalp. Upon the surface of his forehead, we can count as many as 19 very firm, prominent, painless tubercles, varying in size from that of a pea to a walnut. There are, besides, several minute nodules in the skin of the part, which are, without question, undeveloped lesions of the same character. The largest of these is situated immediately over and partially involves the left eyebrow. It measures exactly 6 by 12 millimeters. In its center we can observe a cup-shaped shallow

depression, where there has been absorption of the hyperplastic material from which the tubercle was developed. This was, possibly, an arrested process of ulceration. All the other tubercles are roundish, smooth, glistening or glabrous, brownish-red in color, and seated on what appears to be an entirely normal integument. There is no peripheral telangiectasis, but I can discover small enlarged vessels in a few of the new growths.

There is almost complete alopecia of the brows and lids, a few hairy filaments only can be seen on the upper lids. There are none whatever upon the lower lids. These few remaining filaments are short, deficient in pigment and easily removed.

In places there is slight circumscribed nodulation of the lobes of the ears, although there is here no distinct development of tubercles.

The teeth and gums are in a sound condition. Extending, however, from the middle of the hard through the soft palate, a tongue-shaped patch of split-pea-sized tubercles, its point ending in the thickened and tuberculated uvula, displays multiple lesions. These have a grayish-white depressed summit, due, as we learn, to the fact that caustic has been applied to each by the "physicians," to whose performances we have already alluded. When our patient speaks, you notice his peculiarly gruff, hoarse and discordant voice, from which it requires but little skill to conclude that the larynx is involved in the same pathological process. As we have not the requisite facilities in this room, I shall examine his vocal organs with the laryngoscope at the conclusion of this lecture, and will report to you the result.

There is a moderate degree of dyschromia to be perceived over the general surface of this man's body. Between the scapulæ, are distinct bronze-colored streaks, less marked upon the abdominal surface. The skin of the face also, is one or two shades darker than that noted usually in men of his complexion and nationality.

Extensive inguinal adenopathy exists on both sides, though the post-cervical, epitrochlear and other glands are not involved. The glands of the groins vary in size from pigeon's to hen's egg, and are painlessly involved, the overlying integument remaining unchanged.

Almost immediately over the right olecranon process, is a singular lesion, which differs markedly from the tubercles we have seen elsewhere. It is a smooth, yellowish-red plâque, looking something like a condyloma, but is very firm to the touch and quite solid in structure. It is evidently an infiltration of the entire thickness of the skin, in a circular patch measuring 5 centimeters in each diameter, and raised to the extent of about one-half a centimeter. I think that its resemblance to a slice of bacon in the skin would occur to you without suggestion of mine. The patch is generally smooth, though there are a few firmly attached scales in one portion. The history of this lesion differs from that of the others on the same arm. He states that he first had a "blister" develop in its site, which became afterward an open sore, lasting for six months. Even after this healed, it reopened and gave him further trouble.

Scattered over the extensor surface, chiefly of the fore-arm of this side, you perceive that there are seven more tubercles fairly well developed, with smaller lesions interspersed, whose number it is difficult to determine. These are reddish-brown in color and quite like those we saw upon the forehead. One, over the dorsum of the wrist, exhibits an oblong fissure in its center, covered with a light crust. The lesion is somewhat reddened, and suggests traumatism. The largest of those we find here, is of the size of a bean.

Upon the other forearm, and here also chiefly on the extensor surfaces, we find similar tubercles, eleven in number, the largest of the size of a walnut. They are quite painless to the touch, though not insensitive. On plunging a lancet to the base of one, no fluid escapes; the lesion is evidently a solid new-growth.

Upon the upper and inner face of the right thigh also, we encounter the same developments. Here too is the original tubercle, still existing in precisely the spot where he first observed the earliest symptom of his present disease, now five years ago. There has been evidently some retrograde metamorphosis here, which has, as we noted elsewhere, just stopped short of the grade of ulceration. Where the tubercle is thinned by destruction, you can see a firmly attached scale.

Upon the peroneal borders of the legs, and over the surface of

the left thigh, the same lesions are distributed. One, near the left knee, is said to have originated in a "blister," which burst and subsequently discharged a "yellowish stuff" for a long period.

You will note that there is a decided bronze tint of the integument of the legs and feet. It is several shades darker than that of any other portion of the body. The peroneal surfaces of the legs also are somewhat anæsthetic. This anæsthesia, however, is ill-defined, partial, and in no instances limited to outlined areas of the skin.

Our patient complains also of a moderate degree of numbness of the feet, but tells us that he has never had pricking or other abnormal feeling in these parts, such as the "falling asleep" sensation.

(The patient was then removed from the room, at the request of the lecturer.)

Such, gentlemen, is the picture of a case, which, many of you need not be told, is one of tubercular leprosy. Some of you undoubtedly remember the patient affected with the anæsthetic form of the disease presented at this clinic last year; and in the remarks then made, the tubercular form of lepra was briefly described.*

It is somewhat singular that we are enabled to study two cases of this disease, rare in this State, in two successive years. This is the sixth leprous patient of whom I have record in this city. As to the number of those to be found in the United States, our knowledge is yearly increasing. Dr. Rohé, in 1878, estimated the total number of lepers in America at fifty. When I last spoke to you on this subject, I concluded that the number was nearly one hundred.

A record of about 74 cases was obtained by the statistical committee of the American Dermatological Association last year. Since then, Dr. L. F. Saloman has reported 14 cases observed by him in Louisiana; Dr. White, one in Boston; and I have notes of three new cases in Wisconsin and Minnesota, in addition to the three cases previously reported by me from that district, the lepers reported then being still alive. Last month, I saw a

* See a clinical lecture on Anæsthetic Leprosy, *American Practitioner*, Feb. 1879.

Carib Indian affected with the disease, in the amphitheater of the New York hospital. To all these cases we should add the two lepers you have here seen, and a third case, of whose existence I feel very sure, in the person of the little child of the man who has just left the room. She lives in her home in Nebraska, and I have given her name to you, because I think it a matter of importance to endeavor to catalogue every one of these patients known to be living in this country. In other countries, where the disease has made greater progress, the government takes care to keep a register of all cases, but here, where we have a government which is not of the paternal order, the work is left to any man who cares to undertake it, in the interest of science and humanity, and science is always humane. In attempting to eliminate from our scheme of national government all sources of possible evil, we have neglected to endow it with certain powers which might well be exercised for the benefit of the many.

Now let us say a word as to the diagnosis of this disorder. You will remember that the macular, tubercular and anæsthetic varieties of leprosy are frequently either commingled or merely consecutive stages of one malady. We have just examined a patient exhibiting almost typical features of the tubercular variety, and, as contrasted with the equally typical features of the case of anæsthetic lepra you saw last year, you notice here the absence of a history of hyperæsthesia, the absence of large insensitive atrophic patches, of well defined relatively pigmentless areas, of crusted ulcers profoundly involving the integument, and of anæsthesia distinctly limited to certain tracts of the integument. At the same time, the intimate relationship of the two varieties will be manifest if you notice the similar features of the two cases, which are, in brief, a history of bullæ, much less noticable in the present instance, the ciliary and superciliary alopecia, the inguinal adenopathy, and the well-nigh indescribable something which attests the fact that the two men were alike victims of a constitutional cachexia of grave import.

Here again, observe the polymorphism of the disease which exhibits such a curiously ill-assorted collection of symptoms. This is one of the characteristic signs of syphilis, and we ought to stop for a moment to show that we have not syphilis here.

First, then, we have no history of syphilis in this case, though that will count for but little with us, if we find unmistakable traces of the disease elsewhere. The science of the physician, as Ricord has well said, should always be superior to the assertions of his patient. But the tubercles of syphilis are generally small, often encircled at the base with a collarette of small, fine, dirty scales, beneath which crops out the peculiar mixture of red, brown and yellow discoloration, which medical men have long since agreed to call the "copper color." Then too, syphilitic tubercles could scarcely last for five years without degenerating into ulcers, or becoming covered with the peculiar crusts of the disease. A man, too, who has syphilitic adenopathy of the groins, will rarely show such immense enlargement of the glands as you have just seen, but, should he do this, you would detect, almost certainly, engorgement of the post-cervical or epitrochlear glands, which were not affected in the case of Nanzen. Then, too, adenopathy is a symptom very rarely to be encountered in a case which has lasted for five years. We do not find either, the typical syphilitic ulcer, with its sloughy base and clean-cut edges. The arrangement and locality of the lesions are also quite characteristic, since the tubercular syphilide is apt to appear in groups, and, even when upon the face, never is so conspicuously displayed over the brows as to produce the peculiarly lion-like appearance of the forehead, from which the tubercular variety of leprosy derives one of its many names, leontiasis.

Again, in syphilitic lesions of the throat and larynx, we look rather for the opaline mucous patch in the earlier stages, and, in the later, deeply ulcerative lesions, destroying the submucous tissues or forming membranoid occlusions of the glottis. The tubercles of this throat, considered in connection with the husky voice, recall the signs of leprosy which in the middle ages were thought to be pathognomonic of the disorder.

You will also remember that in vitiligo, there are merely pigmentless areas of integument, without the slightest evidence of the constitutional impairment which is here so conspicuous, while in the disease known as morphœa, there is usually a lilac-tinted border about each infiltrated patch. The bacon-like plâque over the right elbow in Nanzen's case, is commonly seen in the tuber-

cular forms of leprosy ; and I might add that it no way suggests the subcutaneous gummata of syphilis, as the latter are covered with a sound integument, except when in process of degeneration, which results, as a rule, in a typical syphilitic ulcer.

I will not waste your time by pointing out the difference between this disease and the "scrofula," which it was supposed to be. The best use we can make of a blunder of this sort, is to remember that the term scrofula is, more frequently than any other with which I am familiar, made to cover up ignorance, and I urge you to employ it only in those cases where you have the unmistakable evidences of what the best thought of our time has agreed to set apart from all other diseases by that single designation.

The pathological history of lepra is one of new-growth. There is, as you observe in the drawing which I now show you, in all these cases, especially around the thick-walled blood vessels and the cutaneous glands and hair follicles, an abundant development of small, round bodies, closely crowded together, which are masses of living matter, derived from the living epithelia of the normal skin, surrounded by interlacing bundles of connective tissue, not yet undergone the embryonal changes which have been so well described by the later observers. This is true not only of the tubercles, but also of the infiltrations of the surface, such as you saw on the elbow of our patient.

Tschirien has recently observed special changes in leprosy in the form of atrophy of the gray substance of the posterior cornua, and small roundish bodies accumulated in the tissue of the ependyma, with complete integrity of the white substance and the roots of the nerves.*

The questions relating to etiology and contagion, I can dismiss now as before, with a word. The etiology of leprosy is absolutely unknown, and the differences between scientific observers as to contagion, are still unreconciled. My own belief is that the disease is not contagious, and yet I confess that, when it is urged by those who do not accept this view, that the period of incubation is an extremely prolonged one, lasting, it may be, for fifteen or twenty years, we are confronted with an hypothesis,

* *Prog. Méd.*, Mar. 15, 1879, p. 203.

in confutation of which it is well nigh impossible to accumulate proof.

Certainly, if we choose to rely on the statements of our patient, we may conclude that the disease occurs in his family by heredity. There is no proof of the disease in the parental history, and he tells me that he does not know that any of his grandparents, either on the side of father or mother, suffered in a similar way. But we have tolerably distinct evidence of lepra in two of his brothers, and I need not repeat what has been said about his daughter. Heretofore I have stated that no leprous children were known to have been born to leprous parents on American soil, and, if our suspicion regarding this child be well founded, she is the single exception on record. I have made careful inquiries on this point, among the Scandinavian physicians whom I know as having experience of leprosy in the Northwest, and all these gentlemen have denied knowledge of such an occurrence. On the contrary, we know of several cases in which leprous American parents have had children who never presented traces of the parental disorder. It seems to me that the wisest course for us to pursue with regard to the question of heredity, is that described by military men as an "armed neutrality." We can not demonstrate either side of the question, and are compelled to recognize the fact that excellent grounds exist for holding to each view.

As to the prognosis, in the case of our patient, I am inclined to speak much more favorably regarding it, than in the last case brought before you. The anæsthetic patient, Brusher, was a man of dissolute habits and poverty stricken, compelled to seek relief at our public charities. Misery, as the French distinctively term these wretched social conditions, has a great deal to do with other diseases than leprosy. After the date on which you last saw him, Brusher rapidly failed in strength and health. Crops of bullæ continued to appear and burst, and leave sequelæ in atrophied and anæsthetic patches. Emaciation, much darker bronzing of the surface, and finally, chilly and febrile states to these succeeded. In the course of five months, his extreme cachexia contrasted painfully even with the deplorable state in which you first saw him.

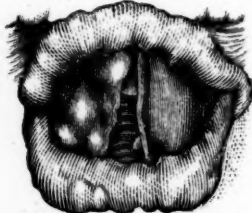
I would make simply a less unfavorable prognosis in the case of Nanzen, although we must bear in mind that the tubercular forms of lepra prove fatal more rapidly than the anæsthetic forms. The former period is set, by Professors Bœck and Danielssen, at between eight and nine years. Our present patient is a fairly well-to-do farmer, living in a salubrious part of the country, and able to provide himself with what is really necessary for the preservation of his health. His general appearance is not nearly so unfavorable, apart from the symptoms of his disease, as was that of the poor fellow who limped into this room, nearly one year ago; and yet, curiously enough, the two men had exhibited symptoms for nearly the same length of time.

I prefer to base this favorable opinion upon the considerations named, rather than to lay undue stress upon the supposed value of the external and internal medication, which we shall adopt in the present instance. We shall instruct our patient in the matter of hygiene and food, and give him internally an emulsion of the chaulmoogra oil, which has of late been highly praised in the treatment of lepra. I ought to add, however, that some who have used it, have already pronounced against its efficacy. It is produced by expression from the seeds of the *gynocardia odorata*, and, according to Dr. Wyndham Cottle, can be given in doses gradually increased from 5 minims to 4 grams daily. It is best administered in emulsion, and, as it has a tendency to constipate the bowels, may require the occasional aid of a cathartic. In the form of an ointment, containing 1 gram of the oil to 4 of lard, it is also applied externally, and we shall also thus employ it in the present case. As a matter of personal experience, I will say that the oil leaves a most persistent taste in the mouth, which is somewhat disagreeable, and which therefore requires correction by some of the devices of elegant pharmacy.

On the conclusion of these remarks, a laryngoscopic examination of this patient was made by Dr. H. A. Johnson, Dr. E. F. Ingals, and the lecturer. Dr. Ingals was successful in securing an accurate drawing of the laryngoscopic appearances, which are well represented in the annexed cut. It will be seen that the

tubercular development has greatly altered the intralaryngeal appearance, and that the mucous surfaces are also infiltrated and deformed by the same new growth of living matter, which has been observed on the surface of the skin. The tumefied surfaces were reddened, and the mobile parts extremely sluggish in all the

FIG. 1.



LARYNX OF LEPER IN DR. HYDE'S CLINIC.

movements of phonation. Five tolerably distinct tubercles are visible, projecting from the right vocal band, and one also projecting from beneath that on the left, toward its anterior border. Another tubercle is indistinctly shown, projecting from the anterior border of the trachea. In this case, also the larynx exhibits the reddish-yellow color, and the vocal cords the grayish appearance, mentioned by Dr. Elsberg.

The larynges of lepers have rarely been examined. In the *Medical Record*, of New York, for Jan. 4th, 1879, p. 10, will be

FIG. 2.



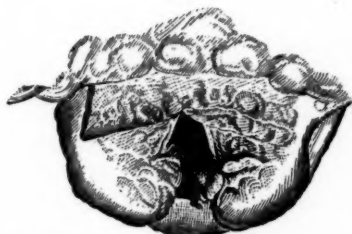
LARYNX OF LEPER. DR. ELSBERG'S FIRST CASE.

found an interesting report of the throat clinic at the Charity Hospital, New York, service of Prof. Elsberg, whose observations on the larynges of two lepers, are there given. The two patients were in a more advanced stage of the disease than was the man whose case has been given above, but the general direction of

the laryngeal changes in all three cases, is remarkably the same. In the accompanying cuts, which have been kindly loaned by Dr. Elsberg to illustrate the report of this lecture, it will be seen that the tumefaction and tubercular studding of the mucous surfaces, advance to deformity from the bulging of the masses which weigh down the mobile parts of the vocal apparatus, and which are accompanied by hypersecretion, while a still more advanced stage can be recognized in greater shapelessness, increased secretion and ulceration.

According to Dr. Elsberg, these changes are preceded by dilatation of the blood vessels in the epiglottis; a peculiar reddish-yellow appearance of the interior of the larynx; gray or dirty discoloration of the vocal bands; and, later, with increased vascularization, tubercles and ulcers.

FIG. 3.



LARYNX OF LEPER. DR. ELSBERG'S SECOND CASE.

It is proper to add that in a letter from Nanzen, received by Dr. Youngstedt, one month after the commencement of treatment by the chaulmoogra oil, the patient writes that he is feeling a great deal better, and that his voice is becoming clearer, while the tubercles are decreasing in size, and the normal sensitiveness returning to the lower extremities. How much of this may be due to the encouragement derived from confidence in his physicians, remains to be determined. But an interesting confirmation of his opinion is furnished in his statement, that his leprous daughter, who is taking the same oil in one minim doses, with external inunction, exhibits an equally marked improvement, the tubercles diminishing in size upon her extremities.

Original Communications.

ARTICLE II.

SOME FURTHER THOUGHTS CONCERNING THE ORIGIN AND SPREAD OF YELLOW FEVER AND THE MEANS OF PREVENTING IT. By N. S. DAVIS, M.D., Chicago, Ill. Read to the Evanston Philosophical Society.

During the progress of the severe epidemic of yellow fever in the summer of 1878, in the lower part of the valley of the Mississippi, I wrote an article on this subject, which was read to this society and published in the *Maryland Medical Journal* for October, 1878. In that article I endeavored to show that while we were not able, in the present state of medical knowledge, to point out the special specific cause, *materies morbi* (if such exists), which causes the disease called yellow fever, it was possible to state several of the conditions necessary for its production and propagation; and further, that at least some of these conditions are amenable to human control. I ventured also to specify some of the means for gaining such control over the production of the cause, and for limiting its spread or propagation after it had been produced. And I come now to inquire whether the re-appearance of the disease in some places on the Mississippi the past summer, and the investigations of the past year, have developed any new facts or thrown any new light upon either the origin or the means of prevention of the disease. If the questions involved in a consideration of this subject were of interest to physicians and their patients only, I would not occupy your time with it. But you are well aware that no questions bear a more direct relation to the social, industrial and commercial interests of the country than those relating to the origin and

spread of severe epidemic diseases. Such diseases cannot prevail in any part of our country without causing such destruction of life, suspensions of industry and interruptions of commerce as to be felt throughout the whole land. Therefore, whatever relates to their causes, modes of propagation and means of prevention, is of interest to all classes of the community. In my former paper, to which allusion has been made, I stated the following propositions as fully sustained by the history of all previous epidemics:

"1st. The essential cause of the disease, whether animal, vegetable, or chemical, depends for its development and propagation or spread, on conditions of a strictly local character, found co-existing only within certain geographical limits.

"2d. The most important of the necessary co-existing conditions so far as ascertained, are, continuous high temperature, excess of atmospheric moisture, the presence in the atmosphere of the products of animal or vegetable decomposition, and such geographical position in relation to latitude and altitude as to secure a great predominance of the warm over the cold season of the year. The absence of any one of the first three conditions here named, positively prevents the development or spread of the disease. On that part of the northwestern coast of Africa bordering on the Atlantic and the Mediterranean, and the West India Islands where these conditions always co-exist in a prominent degree, the disease is indigenous or endemic, prevailing more or less during the warm season of almost every year; while within certain limits, both north and south of the regions just named, the cause of the disease may be either developed locally or imported from other places and spread, whenever a season occurs in which the essential conditions co-exist in an unusual degree.

"3d. As all the known conditions essential to the development and spread of the disease, pertain to the atmosphere, it is plain that the essential cause must be developed in the atmosphere and not in the living human body. Consequently if such cause spreads or becomes transferable from one place to another, it is solely by atmospheric infection and not from personal contagion. And no amount of atmospheric infection by importation or other-

wise can propagate the disease or its causes, in any locality where the atmosphere does not contain the required temperature and local impurities.

"4th. The causes and conditions giving rise to the disease being exclusively of local atmospheric origin, are neither developed in nor evolved from the bodies of the sick; and, hence, the transference of any number of persons, whether sick or well, from infected places to localities where the essential atmospheric conditions do not exist, never has propagated the disease in the latter places and never can."

It will be perceived that the words atmospheric *infection* and personal *contagion* are used in the foregoing propositions, and it may prevent confusion of thought or misunderstanding, if I explain that the former relates to a poison generated outside and independent of the human body, and its propagation is wholly dependent on certain atmospheric conditions; while the latter is always generated in the living body and communicable from one individual to another by contact or near proximity without any regard to the conditions of the surrounding atmosphere. Hence the diseases produced by the infections prevail only within certain climatic and geographical limits and at certain seasons of the year, of which intermittent, remittent, and yellow fevers, and cholera are noted examples; while those arising from personal contagion prevail in any locality or climate and at any season of the year, of which small-pox, measles, scarlatina, and whooping-cough, are familiar examples.

In my former communication many facts were given from the history of former epidemics in this and other countries, sustaining more or less fully, the truth of the four propositions just stated.

Instead of repeating these, I shall simply inquire how far the facts developed in connection with the epidemics of the two past summers (1878 and 1879), sustain or disprove these same propositions. The most important items in these several propositions are contained in the first paragraph of the second general proposition, which asserts that the conditions essential for the origination and spread of yellow fever, are the co-existence of continuous high temperature, excess of atmospheric moisture, the presence in the atmosphere of the products of animal or vegetable decompo-

sition, and such geographical position in regard to latitude and altitude as to secure a decided predominance of the warm over the cold season of the year.

During the last few months, Dr. W. Hutson Ford of St. Louis, has published the results of observations concerning the relations of temperature to the prevalence of yellow fever. He has been enabled to compare the meteorological and mortuary records of Charleston, South Carolina, through a period of thirty-eight years, and of ten other southern cities for a period of five years. Of the thirty-eight years included in the records in Charleston, seventeen were characterized by more or less prevalence of yellow fever. In six of these eighteen years the disease assumed a severe epidemic form; in six, mildly epidemic, and in five, only a few sporadic cases occurred. Only twice during the whole period did the disease prevail in decided or severe epidemic form two years in succession. In nearly all instances only sporadic or scattering cases occurred the summer succeeding a severe epidemic. The commencement of the disease was generally in August and its prevalence was limited to the months of August, September and October. On comparing the meteorological with the mortuary records for the whole period of thirty-eight years, Dr. Ford found that the years in which the yellow fever was epidemic were the same in which the summer heat rose to the highest *mean* for the three months just named in each year. The six years of severe epidemic prevalence were also the six years giving the maximum mean temperature of the summer months. The six years of slight epidemics ranked next in the mean temperature of the same months.

The five years of sporadic cases gave a mean temperature for summer and autumn less than those in which the disease was moderately epidemic. In the remaining twenty years in which there was no prevalence of the yellow fever, the mean temperature of the summer months was at the minimum; the highest of any of these years being lower than the lowest of those in which the disease prevailed. The only exception to this rule was in 1836, when the mean temperature of the months of July, August, September and October, was as high as the years of most severe epidemic prevalence of yellow fever, and in that year the city was

scourged by a severe epidemic of cholera, that appeared to supercede the yellow fever. Dr. Ford has analysed and compared these statistics of Charleston in the most varied and philosophical manner, but always arriving at the same result, namely, that the seasons of yellow fever epidemics are identical with those of highest summer temperature. His comparison of meteorological and mortuary statistics in the other ten cities situated on the Gulf of Mexico and along the Mississippi river, as far north as St. Louis and Louisville, is only for a period of five years including 1874-5-6-7-8. But they lead to precisely the same conclusions.

Thus the summers of 1873-4 were a little above the average mean for a series of ten years, and there were moderate epidemics of yellow fever in several of the cities on the lower Mississippi and the Gulf. The summers of 1875-6-7 were decidedly below the mean temperature for a series of ten consecutive years, and there were no epidemics of the fever in any of the cities under consideration. The mean temperature for July, August, September and October, was the lowest in 1875, from which an annual increase was presented in 1876 and 1877, culminating in the extraordinary summer temperature of 1878, and the equally extraordinary epidemic prevalence of the the disease. The mean temperature of the summer of 1879, just closed, falls below that of 1878, yet is decidedly above the average for a series of years, especially in the middle and lower part of the Mississippi valley. And true to the law, already deduced, the yellow fever re-appeared fairly epidemic in Memphis and its vicinity, and sporadically in New Orleans and a few other places. These eminently philosophical deductions of Dr. Ford, are corroborated by a great variety of other facts; and are sufficient to show a *necessary* connection between unusual high summer temperature and the appearance of yellow fever epidemics. If the investigations related only to the years 1878 and 1879, or to any other one or two years, the co-existence of a high mean summer temperature and an epidemic prevalence of the fever might be regarded as merely accidental; but when the statistics cover a period of thirty or forty consecutive years, as in the case of Charleston, and the same co-existence is found uniform throughout, the presumption of accidental coin-

vidence ceases, and the deduction assumes the importance of a fixed law. The same series of investigations and statistical comparisons also establish the important fact that the fever never assumes an epidemic character until the high summer temperature has progressed two months, namely, through the months of June and July; the favorite month for its epidemic ravages to commence in our country being August. And in the few instances of its commencing to prevail epidemically in July, it is found that the high summer heat had commenced in May. Such was the case in Memphis the past summer. In the temperate zone the sun reaches a position relative to the earth which gives to its rays most directness and power to impart the greatest amount of heat to the earth's surface, about the 21st of June. At the same time, the days become the longest compared with the nights, and consequently, more heat is absorbed each day by the earth than is radiated into the air during the night; and hence there is a steadily increasing temperature of the earth's surface through June, July and August, while that of the atmosphere may be much more fluctuating. Often times, even here in Chicago, the mercury rises higher for a few hours in the middle of some days in the third week in June, than in any other days of the year, but the nights are yet cool, and no visible disturbances of health result from such temporary high temperature. So also many instances have occurred where ships having yellow fever on board have arrived in New Orleans and other Gulf or Atlantic ports, during the months of May and June, and even here and there a sporadic case has occurred in those cities independent of any known importation, during those months, yet no general or epidemic development has appeared, until the latter part of July or in August, and in many instances, not until early in September. These facts show that it is not merely high temperature, but such temperature continued until the surface of the earth reaches a degree of heat and moisture most favorable for rapid decomposition of organic matter, and the suspension of the products of such decomposition with aqueous vapor in the atmosphere, that we get the exact meteorological condition *necessary* for originating or sustaining an epidemic of yellow fever. But even when the temperature is sufficiently high and long continued, with a moisture most

favorable for fermentation or decomposition of organic matter, yet no epidemic yellow fever will be developed unless the particular kind of organic matter required be present to undergo such change, in sufficient quantity to impregnate the atmosphere to a considerable extent. Just what the deleterious material is, that is engendered and diffused in the atmosphere as the pabulum for supporting yellow fever, is not yet known. Neither is it fully known as to what kind of fermentive or decomposable organic matter is necessary to furnish the pabulum on which the heat and moisture is to act. Yet all the facts connected with the origin and progress of the yellow fever during the last two summers, point unmistakably to local atmospheric and topographical conditions as exerting a controlling influence over the spread or continuance of the disease, whether its supposed essential cause was imported or not. For instance, in the summer of 1878, the disease assumed an epidemic form in New Orleans during the month of July, and prevailed nearly a month before any cases were recognized in Memphis, although there was constant communication between the two cities both by river and railroad. And at a still later period the disease made its appearance in many smaller places, more or less distant from each other, so nearly simultaneously as to preclude the possibility that it had been communicated from one to another.

Again, in the present year, as is well known, the disease commenced in Memphis, and prevailed severely before it had appeared in New Orleans, or any other place bordering on the Gulf. More than half the population speedily abandoned the city, scattering themselves widely over the more northern parts of the country; many hundred more went into camps on well chosen ground only twenty or thirty miles distant from the city; while the local board of health, aided by the State and national health organizations, not only established and enforced the most rigid quarantine, but waged an unceasing warfare upon the disease in the city by isolation and disinfection, using almost unlimited quantities of the best antiseptic and disinfecting remedies known; and yet the epidemic continued the even tenor of its way in the city, and after five weeks made its appearance in a score or more of smaller places in different directions from Mem-

phis. But the moment a severe frost made its appearance, reducing the temperature of the atmosphere a little below 0° C., or 32° F., the disease, which for nearly three months had bid defiance to hundreds of tons of disinfectants and any number of quarantines, even when aided by shot-guns, disappeared as if by magic. If we put the facts recently developed in regard to the necessary influence of continuous high temperature in originating an epidemic of yellow fever, with the long known fact that a *low* temperature invariably extinguishes it, we have proof amounting to demonstration that the propositions already stated in relation to the several conditions that *must co-exist* in any given locality to allow the development of an epidemic of this disease, are correct.

In relation to the most efficient means of preventing the development and spread of yellow fever, I stated in my former communication, "that the first and most important of all the measures for preventing the development of yellow fever in any given place, either locally or by importation, are such as will remove one or more of the conditions necessary for the production or spread of the disease. Of these conditions, the one most readily under human control is the contamination of the atmosphere from local sources of vegetable and animal decomposition. It is well known that the chief sources of such decomposition are imperfect and uncleanly sewers or cess-pools, foul and stagnant water, and low, moist ground, rich in vegetable matter.

"To remove these sources of atmospheric impurity early in each year, and keep them thoroughly removed until the close of the warm season, and thereby prevent the supply of local material on which the essential cause of yellow fever depends for its propagation, is the *only reliable* safeguard against the development of this disease in any place within the geographical range of its prevalence. If this is neglected until the atmosphere of any locality becomes filled with miasms as a pabulum for the fever poison, and the summer temperature prove continuously high, the disease will prevail and spread in defiance of all the inland quarantines that can be devised. But if a sufficient degree of cleanliness in regard to streets, alleys, gutters, sewers and stagnant waters, to prevent the atmosphere from becoming filled

with the products of decomposition and impurities, is accomplished early in the season and faithfully maintained until the frosts of autumn, there will be no danger of the prevalence of yellow fever, either by importation or otherwise. The point of vital importance is to *prevent* the development of the noxious material that constitutes the pabulum on which the essential cause of the disease feeds or out of which it originates.

The second series of preventive measures of great importance is suggested by the third and fourth propositions stated above, and are as follows :

“1st. The municipal and health authorities of every important city or town on the coast of the Gulf, from the Mexican boundary to Charleston on the Atlantic ; on the Mississippi from New Orleans to St. Louis ; on the Red River below Shreveport ; on the Ohio below Pittsburgh ; and on the principal lines of railroad in immediate connection with such cities and towns, should deliberately select the nearest unoccupied, dry, elevated place, containing pure air and good water, and as readily accessible as possible, to which all families willing to go could be speedily removed from an infected street or section of a town or city, and accommodated in tents or other temporary structures until they could safely return to their homes.

“Wherever this principle of speedy removal was acted upon by our army, it proved entirely successful in stopping the spread of the disease among the soldiers, and its imperfect and limited adoption at Memphis the present season has been of great value.

“If the proper places were carefully selected beforehand, and a supply of tents or other material kept under the control of the proper authorities, so that on the first appearance of the disease in a neighborhood those exposed could be removed without delay, and ordinary supplies of provisions for the poor dealt out *only* at the camp or camps, there would be but little difficulty in limiting the local spread and fatality of any epidemic. While such camps would chiefly operate for the benefit of the poorer classes (and wherever it should be possible to find the proper grounds on railroad lines within a radius of from ten to twenty miles of the city, many of the workingmen could go in every morning and continue many kinds of work), all who were able to provide for themselves

and their families away from home and were not thoroughly acclimated, should be encouraged to go early and freely, the only condition imposed being that they should not stop until they had passed entirely north of the climatic zone of the yellow fever. The only internal or inland quarantine regulations required are the selection of suitable and well prepared healthy stations a few miles from each of the more important cities on the great lines of travel, whether by river or railroad, where boats and trains shall halt long enough for inspection, and if any are found sick of the fever they shall be transferred directly to the station and cared for, the boat or car being thoroughly ventilated, and allowed to proceed with all the well persons, to any proper northern destination. The great northwestern region bounded on the east by Waukesha, Mackinac and Marquette, extending indefinitely westward over the northern peninsula of Michigan, northern Wisconsin and Minnesota; and the whole Alleghany range in the northeast, from Virginia to the Adirondacks, are sufficient to accommodate every unacclimated person in the lower Mississippi Valley and in our southern seaport cities; and they could no more spread the yellow fever in those regions than intermittent fever could be spread on Mount Washington.

"2d. The same principles apply to commerce and business. There is no positive evidence whatever, that the disease is ever transmitted by simple contact with the sick, nor by either articles of clothing or merchandise that have been freely exposed to the air outside of an infected locality. It is only when the *infected air* of the locality where the disease is prevailing, is shut up in the hold or apartments of a ship, boat or car, or boxed up with goods in boxes or trunks that it can be carried to distant places and retain its active properties. And even when so carried, it must be let out in an atmosphere in the new locality at the proper high temperature and containing the necessary local miasms or impurities, or it becomes utterly harmless. All that is necessary, therefore, is to have all ships, boats, and cars, carrying freight, stopped at suitable places outside of populous towns, inspected, all parts thoroughly ventilated and cleansed; and where goods had been packed in bales, boxes, or trunks, the same opened and aired before they are received by the parties to

whom they are consigned. If the municipal and health officers throughout the Mississippi Valley had been prepared, at the first beginning of the present epidemic in New Orleans, to have acted promptly in accordance with the foregoing suggestions, and their action been cordially sanctioned by the people of the North, how vastly different would have been the result. Instead of throwing every possible obstacle in the way of the escape of the unacclimated and timid from the infected city or cities; stopping commerce and business, and consequently supplies; throwing laborers out of every kind of employment, thereby adding to the dread of pestilence, the still more destructive horrors of famine, idleness, and isolation from the rest of the world; tens of thousands of those who have been compelled to remain, substantially imprisoned within the infected regions, or to overcrowd the few places, like Nashville, Holly Springs, Louisville, and to a less degree, Cincinnati and St. Louis, near the borders of the climatic yellow fever zone, would have been enjoying health and vigor in the regions indicated in the north; other thousands of the poor would have been in healthy encampments, where their wants could have been easily and regularly supplied; the business of the country would have proceeded in its ordinary channels, and the lives of at least one-half of those who have fallen victims to the pestilence would have been saved."

It must be remembered that these suggestions in regard to preventive measures were written while the epidemic of 1878 was in its most active stage of progress. It is now a matter of interest to enquire whether anything has since transpired, calculated to either sustain or disprove their correctness. In regard to preventing the atmosphere from becoming impregnated with the products from decomposition of vegetable and animal matter, by efficient drainage, strict cleanliness, and the proper use of disinfectants all the year, but especially during the three months preceding the climax of summer heat, not enough has been done to afford a fair test of its value. The proposition that, on the appearance of an epidemic in any given place, all persons not being fully acclimated or protected by previous attacks of the disease, should be encouraged to immediately remove to healthy districts; such as were pecuniarily able to go beyond the yellow-

fever zone, and those who were not able, to go into well-selected camps in the vicinity, was subjected to a pretty fair test in Memphis the past summer.

On the outbreak of the epidemic the utmost facilities were afforded for all who wished to go to the North, and three camps were established in judiciously selected localities within twenty or thirty miles of the city, in which many hundreds of the poorer classes took refuge. The result was most gratifying. Those in the camps remained perfectly free from the disease; only a very few of those who fled to the North were taken sick after their departure, and yet the population left in the city was reduced to ten or twelve thousand, and the aggregate number of deaths from the fever during the whole season was only about 550, instead of 2,500 during the epidemic of 1878.

The suggestion to carefully select stations in proper places along the lines of travel and commerce, both by rivers and railroads, at which boats or cars from infected places should be stopped for inspection, and, when necessary, thoroughly ventilated and cleansed, with the removal of any found sick to a hospital for proper care, while the well were allowed to proceed on their way, thereby substituting systematic inspection, with enforcement of ventilation, cleanliness, and care of the sick, in the place of quarantines, has been tested only to a limited extent. A station of this kind was established the past summer at Island No. 1, below Cairo, and in a less perfect manner on the Ohio, below Louisville and Cincinnati. The quarantine station, fourteen miles below St. Louis, was also managed partly on the same plan. The results at each of these places has been most beneficial, and fully demonstrates that if the plan of establishing *inspection stations*, with temporary hospital accommodations attached, was carried out in the systematic manner I have suggested, it would afford a far better protection against the spread of the disease from one place to another than the ordinary methods of quarantine, even if aided by shot-guns, and yet neither destroy commerce nor interrupt labor.

The question is often asked whether there is any danger of yellow fever in Chicago? We may confidently answer this question in the negative, if there is such necessary connection between continuous high temperature and the prevalence of the disease as

indicated by the foregoing meteorological facts. So far as yet ascertained, the fever has not occurred in any place in the Southern States as an epidemic, however mild, until after at least two months of *mean* summer heat, ranging from 21.3° C. to 26.8° C., continuing at 26.8° C., or above, for August and September, and from 24.1° C. to 26.8° C. for October.

It is well known that we have no seasons of such protracted high heat here. For instance the temperature of the past summer (1879) was above the average for a series of years; yet the mean temperature for July was only 24.6° C.; that of August 22.7° C.; September, 16.1° C., and October, 16.6° C. It may be proper to remark that the mean temperature of the last named month was at least 2.7° C. above the usual average mean for October. But, while the temperature of our summers is too low to favor the prevalence of yellow fever, it would be a great mistake to suppose that it was not sufficient to produce a great effect on the prevalence and mortality of some other diseases. On the contrary, the sudden accession of continuous high heat in July, as compared with May and June, uniformly induces a rapid development of bowel affections, as diarrhœa, cholera morbus, and cholera infantum, which prove fatal to large numbers of children under three years of age. Indeed, a larger number of children under three years of age died in the city of Chicago during the months of July and August, 1879, than have died of yellow fever during the whole of the same year in all the Southern States. And the unusual high mean temperature of the past October was accompanied by 112 more deaths in this city than during the corresponding month in 1878, the mean temperature of which was about 5° C. lower. It is thus seen that meteorological conditions exert an important, if not controlling, influence over the prevalence of ordinary endemic, as well as over extraordinary epidemic diseases.

ARTICLE III.

DIFFUSE MULTIPLE CAPILLARY FAT EMBOLISM OF THE LUNGS AND BRAIN AS A FATAL COMPLICATION IN COMMON FRACTURES, ILLUSTRATED BY A CASE. By DR. CHR. FENGER and DR. J. H. SALISBURY. A paper read before the Chicago Medical Society, Nov. 17th, 1879.

In calling your attention to the above-named serious but very rare disease, we shall first quote the history and post-mortem examination of a case observed last summer in Dr. E. W. Lee's surgical ward in Cook County Hospital, and afterwards make some general remarks on the main features of the subject.

History.—The patient, Mrs. B., a housewife aged 45, and a native of Ireland, was admitted to Cook County Hospital, July 25th, 1879.

On admission, the patient stated that she had fallen from the roof of a kitchen to the ground, a distance of 3 meters, striking upon her left side. On examination, evidences of a fracture of the upper part of the shaft of the left femur were found.

The leg was placed in a comfortable position, but no permanent dressing was applied. Morphia was given *pro re nata*.

July 26th.—The patient was very restless, but did not complain of much pain.

July 27th.—In the morning the patient seemed to be sleeping quietly, but the respirations were quite rapid; 1 p.m., the patient was still unconscious; she could be roused somewhat, but did not become conscious; the pupils responded to light; 5 p.m., she had some slight spasms; the jaws were firmly set for a few minutes; 7 p.m., pulse 112, somewhat weak; temperature 38.5 (101½ F.); respirations, 40 per minute, regular. The patient was still comatose, face pale, lips slightly bluish. The movements of the thorax were natural. Upon percussion, the dullness of heart, liver and spleen was found to be within the regular boundaries. Auscultation showed the sounds of the heart to be normal. Over the lungs the normal vesicular breathing was heard. No râles

were heard, either with inspiration or expiration. The posterior parts of the lungs were also natural. The abdomen was natural. The pupils responded to light, and were equal in size. There was no local paralysis in any part of the body. The urine contained no albumen.

July 28th.—The symptoms were about the same, except that all over the lungs were heard the coarse râles which usually occur in the agony.

Dr. Fenger saw her, and made the diagnosis of diffuse multiple capillary fat embolism of the lungs. Prognosis, fatal.

She died in the afternoon of July 28th.

Dr. Salisbury noticed about the patient an indescribable sweetish odor.

Autopsy.—To the coroner, General Mann, we owe our thanks for his kindness, which enabled us to hold the exceedingly interesting post-mortem. There were present General Mann, Drs. McWilliams, Merriman and Lee, of the hospital staff, besides the internes of the hospital.

The autopsy was made twenty hours after death. The rigor mortis was well marked. The subcutaneous adipose tissue was abundant. The striated muscles appeared natural. In the pericardium was found about 15 cubic centimeters of thin yellow fluid. The heart was natural in shape and size, but flabby. The valves and endocardium were natural. The heart muscle was somewhat grayish. The heart and large vessels contained dark fluid blood, as in strangulation. Small drops of fat were found swimming on the blood. Some old adhesions existed in the left pleural cavity. Nothing abnormal was found in the pleura costalis, nor in the pleura pulmonalis. In the subpleural tissue were many small ecchymoses, up to the size of a pin's head.

Left Lung.—The surface of the whole lung had a peculiar red, spotted appearance, which was most marked in the anterior parts of the lobes. The cut surface of the lung presented the same appearance. Some parts were quite white, which was due partly to anæmia, but chiefly to emphysema along the anterior borders.

The posterior part of both lungs was congested and somewhat œdematous. There was no capillary bronchitis. The bronchial

mucous membrane was somewhat injected, but there were no ecchymoses and no mucus except in the largest tubes.

In one place, at the base of the lower lobe of the right lung, were some larger ecchymoses. One was as large as a lobule, M. .008 in diameter. These ecchymoses were mostly subpleural. The cranium was rather thick, but otherwise natural. The dura mater was natural. The lateral ventricles contained a little clear serous fluid. The brain tissue of the hemispheres was natural, and not particularly anæmic. On the cut surface of the hemispheres, especially in the white substance, were found numerous ecchymoses, appearing as small, round, dark, blood-red points, varying in size from points scarcely visible up to 1 millimeter in diameter. These were found all through the white substance, and a few were found in the gray. The same spots were found in the cerebellum, and a group of them in the anterior part of the pons varolii, and some in the corpus callosum. The vessels at the base of the brain were natural. The substance of the large ganglions was natural.

No fluid was found in the abdominal cavity. The peritoneum was natural. The spleen was of natural shape and size, but on the surface were seen several small, dark irregularly shaped spots 4 millimeters in diameter, which seemed to be superficial hæmorrhages.

The liver was grayish and anæmic, but there were no ecchymoses. The kidney was of natural shape and size, flabby, but otherwise normal. The uterus and bladder were normal. In the fundus of the stomach were small ecchymoses in a limited space of 2.5 Cm. in diameter. Otherwise the mucous membrane of the intestines was normal. In the upper part of the left femur between the 1st. and 2nd. third, was a complete transverse fracture, surrounded by the usual amount of coagulated blood, filling the surrounding inter-muscular spaces. The substance of the fractured bone was normal. The marrow in the canal of the shaft was yellow from infiltration with fat, as we usually find it in elderly persons. No traces of inflammation were seen in or around the fracture. There were no coagula in the larger of the surrounding veins. The femoral vein contained dark fluid blood with no visible fat drops in it.

Microscopical examination showed the following interesting features :

Small pieces cut off with the scissors from the surface of the lung showed the smaller arteries and some of the capillaries of the pleural tissue as a whitish-yellow refracting net-work, owing to the injection and filling up of those vessels with liquid fat. Sections from the interior of the lung tissue showed a fine, more or less complete injection of liquid fat, in the net-work of capillaries surrounding and protruding into the air cells.

The following sketches will show the above mentioned features :

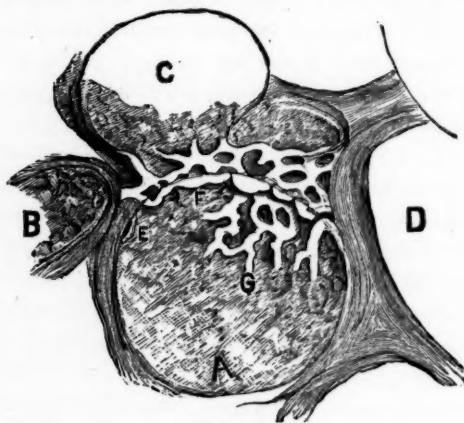


FIG. I.

Figure I, shows one complete air cell, *a*, and three incomplete ones, *b*, *c*, *d*. In the interstitial tissue, between these four air cells, you see besides the usual characteristic elastic fibers, a light net-work of injected capillaries, a loop of which protrudes at *e* and *f* in high relief from the internal wall of the air cell ; at *g*, part of the net-work of capillaries at the bottom of the air cell is visible, on account of the injection with fat.

Fig. II shows an almost complete injection of the capillary net-work at the bottom of the air-cell *a*. In the interior of this net-work we find the homogeneous aspect of the fat, interrupted by small, round, granular bodies of the size of a white blood corpuscle. The above mentioned small bodies may be either white blood corpuscles still clinging to the wall of the capillary after

the oily fat has set in, or leucocytes brought up with the fat from the marrow where they are usually found in great numbers.

The specimens we hereby show in the microscope do not exhibit the above described condition so distinctly now, because the fat,



FIG. II.

in the course of the elapsed three months has, in most places, run out from the cut branches of the capillaries and shows itself now as round, refracting, fat drops scattered all over in the tissues. Still, the capillary injection is visible in some places and the filling up of the smaller arteries with fat can be easily enough recognized—as shown in the microscope with the low power. In another microscope we show a section of the lung tissue with empty capillaries only, to call attention to the fact that here the capillaries are not visible at all, and, unless the capillaries are filled with blood or some colored artificial injecting fluid, we will not be able to see a trace of them. The microscopical examination of the small hæmorrhages in the brain tissue, showed the sub-capillary arteries in the center of the hæmorrhage filled with fat in the same manner as in the lungs. In none of the other organs of the body were we able to discover any fat in the smaller vessels.

Upon adding osmic acid in the sections of lung tissue, the fat in the vessels is colored black and the vessels then appear as if

they were filled with some black injecting fluid. This renders the demonstration of the presence of fat much easier than by the examination of unstained specimens.

We are indebted to the kindness of Dr. Merriman for part of the literature concerning this subject, viz: the *Medical Record*, of New York, July 19th, 1879, where two fatal cases of fatty embolism in fractures are briefly stated.

As far as we remember, the first observation was made in Germany, in 1862, by the renowned pathologist, Prof. Trenker. Attention once called to the danger of liquid fat from the marrow of fractured bones gaining access to the veins and causing obstruction of the lung capillaries, numerous examinations were made of the lung tissue, in occasional deaths after fractures and other lesions, and it was found (Orth*) that fat embolism in the lungs occurs in almost every case of extensive fracture of the bones. It is however in only a very small number of fractures that the amount of fat entering the circulation is considerable enough to prove fatal, or even to give recognizable disturbances in the course of common uncomplicated fractures.

Further investigations by Flournoy and V. Recklinghausen in the necropsy theater at Strasbourg, showed that slight diffuse fatty embolism could be found in 10 per cent. of a series of 260 dead bodies. Up to 1879, Egli Sinclair† had gathered records of 140 reported cases, and he found the etiology to be limited to one of the following three morbid conditions: 1. Extensive contusion or laceration of soft parts, containing abundance of adipose tissue. 2. Fracture, with extensive lesion of the marrow of the bones, and, 3. Osteomyelitis—chronic as well as acute inflammation of the marrow of the bones.

The most severe cases of fatty embolism however set in after fractures; *e. g.* In 140 cases, death ensued in 18; that is, 13 per cent. Of these 18 deaths, 16 occurred in the 84 cases of fracture.

Symptoms and Diagnosis.—The symptoms, as Egli Sinclair gives them, from cases of fatty embolism in extensive fractures,

*Orth, *Diagnosis in Pathological Anatomy*. Translated by Shattuck. New York, 1878. P. 160.

†Egli Sinclair, Ueber Fettembolie. *Correspondenzblatt für Schweizer Aerzte* V. 6, 1879. St. Petersburg *Med. Wochenschrift*, N. 23, 1879; *Allgemeine Medicinisch Central-Zeitung*, Berlin, 2 Juli, 1879, p. 683.

are as follows: Unexpected, rapidly increasing, general debility; then the symptoms from insufficiency or entire absence of oxidation of the blood; respirations from 40 to 60 in the minute; pulse weak and frequent; temperature often somewhat augmented. Râles in the larger bronchi, and finally in the trachea (præmortal). Dyspnoea sometimes to the highest degree; then reddish foam coming out of the mouth. The face grows pale, later cyanotic; the extremities get cold, pupils contracted. The patient becomes somnolent, finally comatose, and death ensues, sometimes preceded by vomiting and spasms.

The diagnosis in the case which we have related was based on the following reasoning:

We had before us a previously healthy person with a simple, uncomplicated fracture of the femur, that from the beginning promised to run the usual benign course towards healing. The second day, except some restlessness, there was nothing to indicate the approaching danger. The third morning she was found in a comatose condition, which had set in without any previous suffering sufficient to waken her from her sleep, which means that the grave symptoms, as usual in these cases, set in suddenly. Besides this comatose condition, we find no fever of any account. A temperature of $101\frac{1}{4}^{\circ}$ is the usual aseptic and innocent rise in temperature that will be found (R. Volkman, in 11 out of 14*) in most of the fractures of the femur not treated with immovable dressings. The physical examination does not show any morbid symptom in the organs of the thorax and the abdomen. The urine shows that there is no disease of the kidneys and no diabetes. As to the brain, we find no symptoms of a local disease. There is no paralysis, equal pupils and no symptoms of pressure, such as stertorous breathing, etc.

The only positive symptoms able to lead attention in the direction of the seat of serious trouble, were the cyanosis, paleness of the face, bluish hue of the lips and the augmented number of respirations—40. These symptoms evidently pointed to the lungs. As now the air-cells as well as the bronchi were normal, we must place the trouble in the circulatory system of the lungs, thrombosis or embolism in a great part of the pulmonary vessels.

* I. Volkman, *Samlung Klinischer Vorträge*, p. 1023. Ueber Septisches und Aseptisches Wundfieber.

A spontaneous thrombosis in the trunk and branches of the pulmonary artery can take place in endarteritis of this artery. But this disease is as seldom found here as endocarditis in the right heart. Embolism could occur from a loosened thrombus in any part of the venous system from the right ventricle or auricle but here was no previous heart disease and no previous exhausting febrile disease.

The only peripheral diseased place to be found was this recently fractured femur. Around a fracture, thrombosis in the larger veins is not uncommonly found (F. Durodié *). The thrombi from the smaller veins formed round every fracture extending out into larger and larger veins, causing probably part of the œdema accompanying so many fractures of the extremities. Loosening of part of these thrombi and subsequent embolism of the lungs is rare but takes place in one case out of three hundred (Durodié). A sufficiently large aseptic embolus in both of the main branches of the pulmonary artery might give a similar series of symptoms ending in death. But the formation of these peripheral venous thrombi and their subsequent detachment and entrance into the circulation take a much longer time than 48 hours, and consequently we were obliged to abandon this explanation of the symptoms. Finally there was left no other diagnosis that would correspond to the symptoms of the case than the fatty embolism of the lung capillaries, i. e. the introduction into the circulation of liquid fat in sufficient quantity to make the greater part of the lung capillaries impassible for the blood. The moderate acceleration of the pulse and the not extreme cyanosis are easily explained by the difficult passage of the blood through the lungs from the venous system over-filled with blood. The weakness of the radial pulsation is a natural consequence of the diminished quantity of blood in the arterial system. The comatose condition may be explained by the want of blood supply to the brain and the medulla oblongata (Wagner †) probably combined with accumulation of carbonic acid in the blood. Whether

* F. Durodié *Etude sur les thromboses et l'embolie veineuses dans les contusions et les fractures*. Thèse, Paris, 1874.

† Wagner, *Manual of General Pathologie*. Translated by Van Duin; New York: 1876; p. 209.

the multiple capillary embolism in the brain in our case contributed to the depression of the cerebral functions or not, cannot be decided.

In a number of the reported cases of this kind the fatty embolism has caused sudden death. (Wagner, loc. cit).

In one of Déjerine's cases death occurred in two and one-half hours, in the other, thirty-six hours after the fracture was received. The report of his cases does not give any information about the duration of the grave symptoms. About this we cannot tell anything for want of the original reports of previous cases. Our case, though fatal, did not take a very rapid course, which was so far interesting, as it gave sufficient time (the grave symptoms lasted over thirty-six hours) to have the diagnosis based upon a minute examination of the symptoms.

Prognosis. — The prognosis depends upon the quantity of the circulating fat, and upon the strength of the heart's action. If the right ventricle can get and keep up power enough to push the fat through the lungs, then the immediate danger will be overcome. An extensive fracture, as the source of the embolism, will make the prognosis worse 20 to 40 per cent. than lacerated soft tissues or osteomyelitis.

Treatment. — The natural treatment will be to stimulate the action of the heart in the hope that an increased *vis a tergo* can drive part of the fat through the lung capillaries, out into the aortic system (digitalis, alcoholics, etc). When the immediate danger from the pulmonary system can be overcome, then the organism will gain time to get rid of the fat, presumably by transforming it into soluble soaps through the action of the alkalis in the blood. Merely hypothetically, we should advise to keep the fractured bone or the diseased part scrupulously immovable, with the view of preventing any more liquid fat from escaping from the tissues. As to this point, we must remember that in the marrow as well as in the adipose tissue, the fat is contained in so-called fat-cells, i. e. membranous sacs. These membranes must be destroyed or torn open before their contents of liquid fat can gather in a fluid, movable mass; and it is in this condition of the fat that the danger lies, as we do not find the fat-cells or sacs but only their contents in the capillaries of the lungs.

ARTICLE IV.

ANOMALOUS COMPLICATIONS OF UTERINE FIBROIDS. By J. T. EVERETT, A.M., M.D.

In a careful examination of the literature on uterine fibroids, there are but few references to any complications whatever. Of the few who have noticed these concomitants, sarcoma and mucous polypi seem to be most frequently mentioned by Schroeder, Nélaton and others. But our standard authors appear to ignore the connection between these troubles, or their relation, treating of each under a separate head and never referring to their synchronous appearance. Various writers have simply mentioned these complications *en passant*; but do not go into details, or dwell upon their treatment or effects. Whether these complications have proved of such small importance in their hands, or whether they are of such rare occurrence as to be seldom seen, I am unable to say. But in my hands they have entailed such sad and grave results as to be long remembered; and have occurred with such frequency as to keep the mind on the *qui vive*. Writers of our text-books may perhaps be excused from mentioning these complications *in extenso*, on the ground of economy of space and to avoid repetition, each being treated of separately under its appropriate head. But the writers of clinical cases should not omit to mention these whenever met with in their operations. The treatment of these troubles when accompanying or following fibroids is a very different matter from their treatment when occurring idiopathically. In 19 cases where I have operated for the radical removal of uterine fibroids, I have met 3 cases of mucous polypi, 4 cases of sarcomatous degeneration of the mucous membrane, and 3 where the fibroid tumor underwent retrogressive metamorphosis. Perhaps as terse and full a treatise upon this subject as in any language, is the paper by Gupéron, in Billroth's "Hand-buch der Frauenkrankheiten," Stuttgart, Enke, 1878.

Schroeder, in Ziemssen's Cyclopædia of the Practice of Medi-

cine, Vol. X. pp. 222-228, gives a very full description of the normal fibroid, and cursorily mentions, softening, induration, sarcomatous and calcification. It is known that the process of softening and disintegration takes place by three kinds of action. 1st. By simple *œdema* thus producing atrophy of the muscular structure when normal absorption takes place. 2d. By fatty metamorphosis, where the muscular fibers undergo fatty degeneration, changing to fat globules, and these in turn being dissolved and absorbed. And 3d. By the myxomatous degeneration, where a large quantity of mucous tissue is formed among the fibers, its pressure causing atrophy of the fibers and absorption thus supervening. The indurative process is quite similar in many respects to the fatty metamorphosis. An interstitial inflammation takes place from some occult cause, and the muscular fibers degenerate into fibrinous bands, which by their contractions cause the atrophy and absorption of all softer material and the tumor assumes a hard cartilaginous appearance and ceases to grow. Of its sarcomatous degeneration, we have two modifications, one attacking the fibroid proper, the other involving the uterine tissues as well. In either case, the process seems to be the same. Round cells begin to proliferate between the bundles of muscular fibers. These continue to grow and encroach upon the surrounding tissue and gradually cause its absorption.

In my own practice of 19 operations for the removal of uterine fibroids, I have met 7 cases of sarcomatous degenerations, two of which underwent a second retrogressive transformation and finally terminated in carcinoma, and one terminated in calcification.

The conclusions of Gupéron are so very pertinent to this case that I may be excused for translating the article *verbatim* :

He says: "In general it can be affirmed that the uterine fibroid is of very slow growth; the more these consist of cellular tissue, the slower the progress and the closer their nature to true fibrous tissue.

"The muscular tumor, or the true myome, grows much faster; it has been observed that these grow at times with astonishing rapidity; this is peculiarly the case during pregnancy. Aside from this, the sudden voluminous swelling does not occur through rapid growth as many have stated, by enlargement, accumulation

of the proper elements, but through the change in the blood accumulation, through œdema or other pathological phenomena such as inflammation. The size of the interstitial fibroid changes, especially before or after menstruation; here occurs the most striking difference, and in not a few instances has the apparent decline after the close of menstruation been mistaken for a retrogressive inflammation. Similar occurrences are readily observed in pedunculated fibroids which are extruded from the mouth of the womb, by which the pedicle is held, thereby causing swelling of the tumor through the retardation of the retroflow, producing œdema; even this must not be considered as a sudden growth. It has been observed in various exhausting and enervating diseases, that transitory diminution occurs, and at convalescence comparative rapid enlargements have occurred.

“Braun, Chaerle and Späth place their symptoms mostly during chlorotic stages. These changes are noticed by all physicians who watch their course for years. A uniform growth of the tumor is shown, yet such cases cease only to enlarge when calcification takes place.”

Of the sarcomatous degeneration of uterine fibroids, the literature is not complete. The cause of the degeneration is unknown. Of its etiology and mode of occurrence there have been many theories advanced which are too visionary to repeat. The tumors seem to occur at any period in life when the preceding fibroid takes a retrogressive change. The uterine mucous membrane is sometimes first invaded by the neoplastic growth. Of the seven cases occurring in my practice, this was true in three instances. In these cases the sarcomatous proliferation appeared to spring from the mucous or sub-mucous stricture of the uterine cervix and to thicken and increase by a rapid growth of spindle-shaped cells in vast numbers, producing a soft, flabby, highly vascular tumor, which accommodates itself to the cavity it finds, extending up into the fundus and being forced out of the os by the pressure of the uterine muscles.

This growth gives rise to exhausting and almost uncontrollable hæmorrhage and various hysterical symptoms which are very troublesome to control. It may eventually end in suppuration or may penetrate the walls of the uterus and encroach upon the

adjacent organs by infection and cause by absorption, grave and fatal results simulating pernicious anæmia.

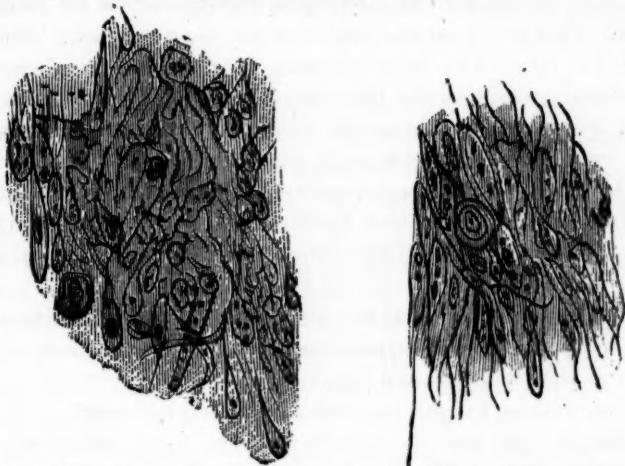


PLATE I, CASE I. [250 DIAMETERS.] PLATE II, CASE 4. [250 DIAMETERS.]

The plates I and II show the microscopical structure of these neoplasms from cases I and III. The following is a history of the case:

Case I.—Was consulted, July 1st, 1875, by Mrs. A. S., aged 59, nullipara, who was very much debilitated from the effects of a frequent hæmorrhage, which had occurred with greater or less intensity, since the removal of a sessile fibroid, the size of an egg, two years previous. There had been a history of uterine trouble extending back for a period of 15 years. For the 16 or 18 months last passed, there had occurred between each of the hæmorrhages, a copious discharge of watery fluid containing shreds of mucous and connective tissue. Examination revealed a sessile mucous polypus, the size of a pullet's egg depending from the os. This was seized with the forceps and removed. It was composed of mucous and connective tissue filled with a mass of gelatinous blood and serum. Gave ergot, iron, quinine and strychnia.

July 18th — Discharge much less in quantity; darker and thicker in quality. The stomach rejecting the ergot it was for four days administered hypodermically. July 22d, the patient expelled eleven mucous polypi of the size and shape of small

oysters. The hæmorrhage was small. Passed negative electrode into the cavity of uterus, with positive over the sacro-lumbar junction and allowed an interrupted current to flow for 15 minutes. This treatment was continued for two weeks, with benefit.

Sept. 7th.—Two more growths expelled and hæmorrhage increased; continued the faradization and the administration of iron, quinine and strychnia, and in addition the compound syrup of the hypophosphites, and ergot hypodermically.

Oct. 8th.—Seven more growths were extruded. Galvanized uterus for five minutes and faradized for twenty minutes afterwards. Same medication; patient feels better; appetite improved.

Dec. 20th.—Eleven more polypi escaped. Used the curette, but without result; no appearance of any more growths *in utero* Os rigid but walls soft and flabby.

Dec. 27th.—Patient improving; hæmorrhage nearly ceased; discharge slight and clear, with no more shreds of mucous or connective tissue. Continued treatment and same medicine.

March 19th.—Patient, while out of the city on a visit, passed two or three more growths. Hæmorrhage slight; no pain.

April 1st.—Patient failing rapidly; no appetite; bowels constipated, nutrition poor; mind, despondent and gloomy. Discharge increasing and offensive; severe pain in right hip, knee and ankle.

April 11th.—No change for the better, but bad symptoms increasing in number and severity; discharge muco-purulent, containing shreds of decomposing tissue. Discontinued faradization and gave morphia hypodermically. Patient very nervous and wasted to a skeleton; medicine borne well, but nutrition entirely suspended.

June 15th.—Patient has failed very slowly; pain in right hip severe; has to be controlled by morphia; discharge copious, purulent and offensive.

July 10th.—Patient about the same, for the last month; at times seeming to rally and again falling back to below the original condition, until the 9th, when œdema appeared in the right lower limb, and is gradually creeping upwards.

July 12th.—Scarified the limb and allowed serum to escape.

Aug. 10th. — Same line of treatment, with concentrated foods and pepsine.

Sept. 2d. — Patient died to-day from exhaustion, having failed steadily since the last record. Pain continued and discharge became more free towards the last.

Case II. — I was consulted in the spring of 1875 by Miss R., niece of the last patient, aged 18, frail and cachectic, with lateral curvature of the spine and retroversio uteri.

These troubles were given their appropriate treatment, to which they responded slowly.

June 15th. — Upon introducing the sound to replace the retroverted uterus, a small pedunculated fibroid was found springing from the posterior portion of the fundus. The os was dilated; the growth seized with the polypus forceps, its pedicle twisted off and the body removed. The hæmorrhage was insignificant and easily controlled by the faradic current. After recovery from her complicated maladies, there still continued a slight serous discharge, and at the menstrual epoch a free hæmorrhage. This was finally corrected by a free use of faradization, ergot and iron.

Sept. 1st. — Patient passed three mucous-polypi, the size of a pullet's egg.

Threw a mixture composed of 10 C. C. tr. ferri chloridi and 10 C. C. fl. ex. a. ergota into cavity of womb. This was followed by severe pelvic pain, shock and chill, with some symptoms of peritonitis. These were easily controlled, however, by a free use of quinia and morphia. I have kept the case in view since that time, and up to the present there has been no return.

Case III. — I saw, in April, 1876, Mrs. B., aged 46; multipara, robust when in health, but now somewhat exsanguine from the repeated hæmorrhages, which recurred every 21 days. Severe pain in left ovary, small of the back, across the abdomen and severe gastralgia. Examination revealed sessile uterine fibroid with pedicle attached near left cornu; being closely embedded in a mass of sarcomatous tissue which sprang from the uterine mucous membrane. In the attempt to remove this growth, masses of the sarcoma were detached and forced out. The fibroid was at length secured and drawn down, its pedicle severed and the tumor removed, it being the size of a goose-egg. The curette

was next used and the entire spongy mass removed, deep down into the healthy tissue; a suppository of bromine, with simple cerate, was then introduced into the cavity of the uterus and allowed to dissolve and trickle out. This treatment produced severe burning pain, vomiting and chill; but reaction soon set in and the patient made a good recovery. In 1877, another redundant mass was removed and the uterine surface cauterized deeply. The patient has done extremely well since, and is at present apparently enjoying perfect health, with the exception of some back-ache.

Sarcomatous degeneration of the uterine fibroid proper is not of rare occurrence, as in my practice this process has followed in four cases, and in two was further complicated by a secondary change to carcinoma. Fibro-sarcoma more often attacks the body of the uterus when not affecting the tissues of a polypoid fibroid,

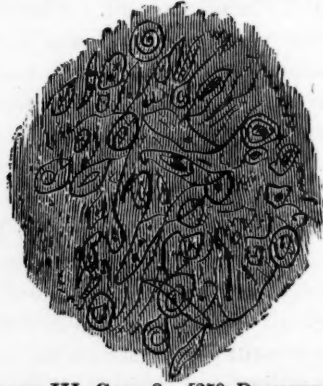


PLATE III, CASE 3. [250 DIAMETERS.]

and is then composed of the altered and softened muscular fibrillæ, of oval or spindle nucleated cells, amid fragments of normal or partly altered muscular fibers. Interspersed in the tissue of the neoplasm are fat globules, etc. (These conditions are imperfectly shown, by my faulty drawings, from a power of 250 diameters. Plates III, IV and V are taken from cases IV, V and VI).

Case IV.—I saw Mrs. B., multipara, aged 46, Sept. 15th, 1876, suffering with severe pain in the back, abdomen and head; hæmorrhage alarming and vomiting persistent. She had, from the date of the removal of a submucous fibroid three years previous, suffered for a long time with similar symptoms and a pro-

fuse watery discharge. The monthly flow had recurred with increasing frequency and severity until it was truly alarming. As the stomach would retain nothing, I at once gave hypodermic injection of ergotine, which somewhat checked the flow, but it soon

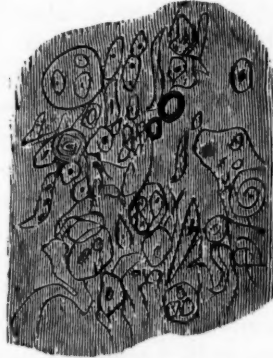


PLATE IV, CASE 6. [250 DIAMETERS.]

recurred; faradisation held the hæmorrhage in check for some time, but it recurred. Injections of ice-water shared the same fate. In desperation I threw 20 C. C. of fl. ext. ergot and tr. ferri chloridi into the uterine cavity. This at once checked the hæmorrhage and permanently; but it produced intense pelvic



PLATE V, CASE 5. [250 DIAMETERS.]

pain, chill and vomiting, with strong symptoms of peritonitis, which responded easily to central galvanism. The next day there appeared an offensive discharge from the os, and the uterus was faradized, when an immense clot was expelled, followed by some

hæmorrhage, which was easily controlled by the faradic current. As soon as the stomach would retain medicine, I prescribed ergot, iron and quinine. At the next menstrual epoch, free hæmorrhage occurred, but not as much gastric trouble. This recurred two or three times, when I determined to thoroughly examine the internal surface of the womb. This revealed soft pulpy walls, and each movement of the sound produced free hæmorrhage. The os was now dilated, and with the curette its inner surface was freely scraped, and a large mass of mucous polypi removed. Two weeks afterward, a slight flow appeared, the curette was again used, but only a small amount of fungous tissue was obtained. The faradic current was used daily for some months, and ferruginous tonics with nutritious foods. The patient slowly improved, but is still troubled with pelvic tenderness, some metritic trouble and gastric irritability.

Case V. — February, 1877, I removed a large fibroid from Mrs. D. B., multipara, 59 years of age, robust when in health, but now exsanguine. Upon dilating the os and attempting to seize the tumor with obstetric forceps (it being so hard and large that the vulsella was useless), large masses of a sarcomatous growth were so closely packed around the tumor that the effort failed. The os was then incised and the hand introduced and the sarcoma broken up and delivered. The fibroid being too large to deliver, it was laboriously divided and removed piecemeal; the hæmorrhage was copious and the patient very much exhausted. The walls were next hastily scraped and rinsed out with carbolated water. The faradic current was used and the hæmorrhage controlled. The patient made a very rapid improvement, and seemed to be getting well, but the discharge did not cease. In 16 months the patient returned with a well marked sarcomatous growth protruding from the os. This was repeatedly removed and cauterized, only to again reappear.

Jan. 24th, 1879. — Anæsthetized the patient, dilated the os and commenced using the curette vigorously upon the uterine walls, scraping off every vestige of softened tissue. Upon working around to the right side, to my surprise, I discovered an intramural fibroid. The serrated scoop was used, and the growth enucleated, which was nearly the size of a goose-egg. The

scraping was continued, and upon its completion the uterus was washed out with a strong solution of ferric chloride. The shock and chill which followed were but slight and the patient reacted well. The uterus contracted well, and soon admitted the sound, only five centimeters. The tumor was of clear white, fibrous, with some muscular and connective tissue. The neoplasm was clearly sarcomatous; specimens of which, in connection with that of the next case were sent to Prof. Byford, of Chicago, who upon microscopical examination, confirmed the diagnosis. For some time the patient seemed to be improving and for several months the hope was indulged that the trouble was controlled. After a time, however, the fungus re-appeared accompanied by marked radiating pains and a cachectic countenance. I took the patient to Chicago, April 7th, to consult with Prof. Byford, who pronounced the present growth clearly encephaloid in character. Upon returning home, I removed every vestige of the fungus degeneration, and put the patient upon free use of arsenic. She is now apparently improving.*

Case VI. — Oct. 12th, 1877, I saw Mrs. H. in consultation with Dr. J. P. Anthony, aged 39, blonde and of full habit, but now exsanguine from repeated floodings. She had never been enceinte. She had complained for 16 or 18 months of pelvic pain and heaviness; severe pain in back and abdomen, neuralgia, inter-current hæmorrhages and profuse watery discharge. A sarcomatous growth protruded from the os of the size of a hen's egg, accompanied by considerable vaginitis and pelvic cellulitis. The patient was of a peculiarly nervous temperament. Although my friend, the doctor, was an old practitioner of the most unquestioned experience and skill, the patient fancied she could not take the medicine which he had prescribed. A change in form of the medicine was therefore made; but this failed to suit our exacting patient, and I, at her request, although with many misgivings, assumed control of the case. The patient was now put upon as mild and tasteless tonics as possible; but at the best little medicine was taken. The faradic current was used daily with the effect of entirely checking the hæmorrhage and discharge.

* The fungus again appeared, and patient died at end of third month.

Nov. 10th. — Patient being somewhat stronger, was anæsthetized and the sarcoma removed carefully and deeply, down into the tissue of the posterior lip of the os. She improved after the operation until the second week in December, when the growth again made its appearance from above.

Dec. 18th. — She was again anæsthetized and the os dilated when, upon removing a portion of the redundant growth, a fibropolypus, the size of a goose-egg was discovered. This was seized and twisted off and all the neoplastic growth removed with the curette. Patient rallied slowly from this operation; but after a time, her appetite improved, the movements became more regular and the countenance assumed a more florid hue, showing that the red globules were increasing in number.

Jan. 4th. — The sarcoma again developed to the size of half a hen's egg. This was again removed, but not as thoroughly as was desirable as the patient refused to inhale an anæsthetic, and a hypodermic injection of morphia was given in its place. The attempt was next made to destroy the growth by applying daily, to the seat of trouble, a solution of bromine in alcohol 1 to 5. This seemed only to retard the growth and not to destroy it. From this time on patient grew gradually weaker, and in spite of every effort to check the ravages of disease it steadily progressed toward a fatal termination. The discharge increased and became offensive.

May 14th. — My health having become impaired from overwork, aggravated by septicæmia (contracted from a wound upon the finger received during an operation), I was compelled to leave the city for recuperation. The case then passed into the hands of my friend, Dr. T. Eckles, who attended her until her death, which occurred in July, from exhaustion and the encroachment of the neoplasm upon the pelvic viscera. During all the subsequent course of the disease, no attempt was made to remove the growth, and the patient took but very little medicine and used but a small amount of food.

Case VII. I was called April 1st to see Mrs. K., in consultation with Drs. Seele and Lee. I found patient complaining of weight in pelvis, pain in back and loins, copious hæmorrhage. Examination showed the uterus enlarged to the size of preg-

nancy at the fifth month, and lifted above the superior strait. The os patulous and a copious sanio-purulent discharge constantly escaped. The finger, introduced into the os, encountered a semi-solid granular mass of peculiar feel. The sound entered with some difficulty, giving a sensation of contact with calcareous matter, and giving rise to copious hæmorrhage. Further examination convinced us that we had encountered the anomaly of a "uterine stone," or calcified fibroid. The patient was then anesthetized and attempts made to enucleate and remove the tumor. This signally failed, and I soon became convinced that the stone was too large to remove — *per vias naturales*. On consulting hastily with my colleague, laparo-elytrotomy was decided upon. This being my maiden effort in this direction, and, in fact, never having seen the operation, and only having cursorily read the report of Thomas' and Skeene's operations, I approached the case with some degree of awe. The hand was passed into the vagina and the relation of the parts learned. An incision was then made, extending from the crest of the right ilium to the border of the symphysis pubis. The epigastric artery was tied and cut and the peritoneum pushed up, and then an incision was made through the tissues to meet the finger in the vagina. The opening was now enlarged as much as possible and the os dilated still more and an attempt was made to grasp the stone and remove it. This, however, failed, from the size of the concretion. After incising the os and dilating the external incision as much as could be possibly done with safety and the impossibility of removing the stone in this manner ascertained, a silver retractor was bent so as to conform to the curve of the uterus, forced in between its walls and the calculus, and, with a fine finger saw, the mass was slowly and laboriously divided and removed in halves. Even this was so large that the tissues were lacerated in its removal. The uterus was then cleared of a mass of sarcomatous tissue, which surrounded the stone, and, in fact, which imperfectly merged from a true sarcoma into a granular calcareous mass. The uterus was next replaced, the walls of the incision brought together and secured with silver wire sutures coated with carbolyzed colodion and covered with a layer of carbolyated cotton. The vagina was then washed out with carbolyated water and a pledget of

carbolated cotton placed therein and the patient put to bed and allowed to recover from the anæsthesia.

The patient endured the operation remarkably well. The shock was not excessive, the hæmorrhage, although profuse, was yet not exhausting. One grain of opium by the rectum was then given and five grains of quinine by the mouth. The patient rested well through the night and in the morning was remarkably comfortable.

I now left the patient in the care of Dr. Seele, the family physician, who reported as follows:

April 5th. — The patient doing finely; vaginal discharge copious and purulent with shreds of decomposing tissue. Reaction fully established. Temperature, 37.8° ; pulse, 85; appetite good; urine, high colored and loaded with flocculent matter. Continued iron and quinine.

April 9th. — The patient improving, but I find strong urinous smell in secretion from vagina. Rinsed out vagina and uterus with solution of carbolic acid and tannin.

April 14th. — Patient convalescing rapidly. Incision healed by first intention. Involution of uterus slow but satisfactory. The discharge gradually lessened and the urinous odor disappeared on the tenth or eleventh. The tumor proper, after removing the sarcomatous tissue surrounding it, measured $17\frac{1}{2}$ Ctm. in its longer diameter and $14\frac{1}{2}$ Ctm. in its shorter. The weight was $4\frac{1}{2}$ lbs. The tumor was composed of almost solid calculi of phosphate of lime and magnesia, carbonate of lime with interstitial fibers of fibrous tissue, albuminous shreds, etc. The surrounding magma consisted of sarcomatous tissue closely packed with cretaceous or calcareous accretions from the size of a pea to that of fine sand, being more closely deposited around the calculus and shading off towards the uterine parenchyma to a few scattering granules. There was estimated to be two or three pounds of this tissue.

ARTICLE V.

TRAUMATIC INSANITY IN ITS MEDICO-LEGAL RELATIONS. By DANIEL R. BROWER, M.D., Professor of Mental and Nervous Diseases, Woman's Medical College; Attending Physician for Mental and Nervous Diseases, St. Joseph's Hospital; and formerly Superintendent Eastern Lunatic Asylum of Virginia. Read before, and published by request of, the West Chicago Medical Society.

The importance of traumatic injuries of the head in the etiology of intra-cranial diseases has long been recognized. Hippocrates wrote: "Nullam capitis vulnus contemnendum," and this sentiment has been translated by Liston: "No injury of the head is too slight to be despised or too grave to be despaired of."

This axiom teaches that not only may as serious a condition as insanity, but death itself, result from an apparently very trivial scalp wound.

We had under observation during the late rebellion a case of gunshot wound of the head that in twenty days resulted in death, and *post mortem* examination showed no injury to the cranial bones, but an abscess in the brain and associated meningitis and encephalitis. This case was one doubtless of contusion of the brain, with solution of continuity of its constituent elements and without injury to the bone—the skull undergoing change of form suddenly, and the cerebral substance offering less resistance than its bony covering, extravasation and laceration of brain tissue ensued, and then the secondary condition above detailed.

The same kind of an injury may result in insanity, and the difference consists probably less in the nature of the injury and its associated phenomena, than in the inherent peculiarities of the individual.

If it should occur in one who possesses the insane temperament, instead of the rapidly progressing pathological process of acute meningitis and encephalitis, we may rather have the slow

proceedings, chronic processes, low grades of inflammatory changes, or simple disturbance in dynamical relations of brain elements that result in insanity.

This suggests the important medico-legal fact that insanity is a chronic disease; that the alteration in brain structure which precedes it requires months, years, or it may be generations for its complete development. The grandparent, for example, may have been addicted to chronic inebriety; the parent may have, as a consequent inheritance, neuralgia, or some other of the neuroses, and the son, insanity. The disturbance in brain nutrition, beginning with the grandparent, not only undergoing transmutation in transmission, but becoming more profound, and only, in the third generation, becoming insanity.

It also follows that pathological conditions, so slow in their advancement, must have a corresponding amount of *time* as an essential factor in their recedence, and therefore no man possessing a healthy brain organization can be rendered insane by any emotion, no matter how violent it may be, and then have restored to him healthy brain action on the subsidence of the emotional disturbance. The plea of impulsive insanity, as from time to time presented in our courts (witness the Sickles, Cole and McFarland cases), has no foundation in scientific observation. It is simply the cunning device of astute lawyers and so-called experts, who either have badly-digested views on the subject, or else are impelled to their opinion by motives other than love of science.

The cranial injuries may be more severe than they seem to be. There may be, for example, fracture of the inner table of the skull, and not of the outer; the blow may not have had sufficient force to fracture both, or its direction may have been disadvantageous, and then all that ordinary examination reveals will be a simple contusion of the scalp, and this with quite extensive fracture of the vitreous table; then we have a case which, examined a few years afterward by the medical expert will exhibit only a cicatrix of the scalp, and the amount of injury done to the internal soft parts can only be determined by a careful study of the history of the case. This history, if the connection between the injury and a criminal act is complete, will show a neuropathic diathesis—will show that after the injury cephalalgia was frequent,

that the sleep was insufficient in quantity, or else disturbed by dreams, that after a time, change was noticed in the emotional and then in the intellectual part of the mind; in rare cases both may have occurred simultaneously.

Three cases that serve to illustrate the medico-legal relations of this subject have come under our observation, two of them recently, and are here related.

Case I.—Capt. —, æt. twenty-three, was wounded in the right parietal region in one of the early campaigns in Virginia; he was rendered insensible for a short time, but speedily recovered after being carried to the hospital. Examination showed a contused wound of the scalp, without any involvement of the bone. In a few days he returned to his command, apparently well. Prior to the beginning of the war, he was the junior partner of a prominent law firm in New York, remarkable for his steady and regular habits, his industry and mental brilliancy. Impelled by patriotism, he gave up his chances for preferment there, and entered the army as a private. The qualities, and these alone, which so distinguished him in New York, rapidly advanced him to a captaincy. Shortly after the injury, he began to have headache and to pass sleepless nights. About four years afterwards a change was manifest in his emotions, in that he became irritable, resentful, quarrelsome and dissolute. The attacks of headache became more severe, and were accompanied by an irresistible impulse to inebriety.

He had a wife and two children; prior to this condition, he always manifested for them the warmest attachment, but now, during the paroxysmal attacks, he treated them brutally, and yet, during the interval, his old love continuously showed itself.

These abnormal states became more frequent and violent, and finally his wife, not understanding their pathology, lost her patience, and became divorced, thus cutting him loose from his only balance-wheel.

He then left this country and went to France, and became an active member of the Commune. Here, as elsewhere, he was a leader; his outrages were conspicuous, and furnished abundant occupation for his irregular explosions of nerve force. At the close of the Commune, he escaped from France, and we last

heard of him in the diamond fields of South Africa, as having escaped from jail, after a conviction for attempted murder and mail robbery.

Case II.—Jeremiah Kennedy, æt. thirty-nine, born in Ireland, grew up a quiet and orderly youth, affectionate and amiable in disposition, with strong religious sentiments. He entered the army at the beginning of the war, as a teamster, and in 1862, while attempting to stop a fight between two of his comrades, received, with a scale weight, several injuries to his head; he fell senseless and remained unconscious for twenty-four hours.

About one year after this he spent a summer in the Andersonville prison, exposed to the rays of an almost tropical sun, and during this time was much troubled with headache and sleepless nights.

He returned home at the close of the war, with a manifest change in his mental traits; he was now very quarrelsome, and subject to fits of violent and ungovernable fury. His family became afraid of him, and he conceived the delusion that they were attempting to poison him. About this time he had an attack of what was doubtless *grand mal* epilepsy. A little further along he became possessed of the delusion that other persons desired to poison him, and, as antidotes, carried about his person camphor and various roots, and frequently took doses of sweet oil. He also became convinced that numerous persons were conspiring against his life, and to defend himself against them, always carried a knife and a pistol. He also, about this time, became possessed of an intense aversion to his church and its priesthood, regarding the latter as the most active agents in the persecutions to which he thought he was subjected.

In the year 1870 he left his home and traveled from place to place, for the expressed purpose of getting rid of his tormentors; but found it impossible to escape their machinations.

During this time he had numerous attacks of *petit mal* epilepsy, and frequent attacks of epileptiform neuralgia. These attacks of neuralgia were very severe, were associated with marked pallor of the face, and were promptly relieved by inhalations of nitrite of amyl; the pain always commenced in the head and ran down to the epigastrium.

He had at this time, also, attacks of transitory fury so intense that his friends then regarded him as dangerous and irresponsible. His wife had often spoken of his peculiar mental state, and several times had almost determined to have him adjudged insane. She was well convinced that at these times of excitement her own life was in jeopardy, while at other times he was kind and affectionate.

The case went on from bad to worse until finally he shot his wife, killing her instantly, and then attempted to kill himself. The night of the killing, before they retired, they were heard by people in an adjoining room kissing and cooing like young lovers. They were not intoxicated, although a small bottle of whisky, smelling strongly of camphor, was found in the room, about half empty. The man says he was aroused by what he supposed was some of his numerous persecutors attempting to break into his room—he seized his pistol and fired at a person walking rapidly across the room, but the whole affair seemed to him like a dream. When he came to his senses, and found that he had killed his wife, he immediately attempted to kill himself.

He was arrested and tried for murder. The plea of insanity was entered in defense, and Dr. H. M. Lyman and myself selected as experts. The foregoing history was thus gathered together. We found, on examination of the man, a cicatrix with a slight depression at the juncture of the right coronal with the sagittal suture; and two other scars over the right temporal ridge without depression. The former he claimed was painful to the touch and was the starting point of the paroxysms of pain previously mentioned.

We also ascertained that he had one paternal uncle, three cousins and a brother insane, and that his father was a person of very unstable mental organization.

Dr. Lyman and myself, with this history before us, came to the conclusion that he was an epileptic, that he had had frequent attacks of *petit mal*—of psychical epilepsy and of epileptiform neuralgia—and occasional attacks of *grand mal*—the explosions of nerve force taking place through the motor, the sensory and psychical areas of nerve action; and moreover that the killing was done while he was in a state of epileptic irresponsibility.

The prosecution endeavored to account for all his irregularities by attributing them to the effects of whisky, and in corroboration of this view the small bottle of whisky, half empty, played an important part. The judge instructed that if the insanity was the result of inebriety it was no defense — a remarkable instruction — and it resulted in a verdict no less surprising, to wit: "We, the jury, find the defendant guilty in the manner and form charged in the indictment, and fix his punishment at death by hanging. We, the jury, also find the defendant insane at the present time."

The judge granted the motion for a new trial, but Kennedy relieved the case of any further legal relations by committing suicide the day after. There was found among his effects a note, written the first day of the trial, which showed that his failure to sooner commit suicide was altogether due to a want of opportunity.

Case III.—Jacob Villinger, æt. fifty, came into the world with an insane heredity. His paternal grand-mother, two of his paternal uncles and two paternal cousins died insane. He manifested a degree of mental impairment at the age of puberty sufficient to earn for himself the sobriquet of "silly" and "crazy" among his companions; he grew up, however, to be a man of ordinary mental capacity, with industrious and frugal habits, raising a large family and accumulating considerable property, for one in his station.

At the age of about forty-two, while at work on the railroad track, he was struck by a passing locomotive; his left arm fractured, and his head injured sufficiently to produce a concussion of the brain, followed by loss of consciousness that continued for several days. After his recovery he complained of severe and frequent headache, had restless nights and gave evidence of a change in emotional condition, by irritability, fits of crying and dislike for society. One year after this injury he sustained another. A stair-case, he was assisting in erecting, fell, and in so doing struck him on the head and knocked him senseless.

After this second accident his mental perturbation was more manifest; he neglected his work, squandered his property and made himself penniless, and soon gave evidence of delusions; thought himself possessed of great wealth, boasted of being the third son of God, wandered about his neighborhood hatless, coat-

less and barefooted in midwinter. He was ardently devoted to his wife; he told several persons that she was too good for this world; that he was the third son of God and must send her to heaven; accordingly, in June 1878, in a public place, in the presence of several persons, without any warning or any evidence of passion or excitement, he shot her. She died immediately.

The plea in defence was insanity. Dr. H. M. Lyman and myself served as experts. With this history before us and with the evidence of disturbance in the functions of the nervous system, as shown by inequality of the pupils, well marked nystagmus, fibrillary twitchings of the muscles of the face, back, thorax and lower extremities, and the evidence of the jail attendants that he slept scarcely at all, ate but little and only such things as were brought from without, believing the jail food to be poisoned, we had no hesitation in saying that he was insane at the time of the homicide, and that he was insane at the time of the trial.

After this opinion was rendered, E. P. Weber, Esq., the prosecuting attorney, abandoned the case and the jury returned a verdict of insanity without leaving their seats.

ARTICLE VI.

DENTAL HINTS FOR COUNTRY MEDICAL PRACTITIONERS. By
G. NEWKIRK, M.D., Wenona, Ill.

PART I.

It is probable that fully one-half your so-called "country readers" are located in towns or in the country where they are more or less remote from a resident dentist. A town may be large enough, in connection with the country tributary to it, for the support of one or two physicians, but not desirable as a location for a dentist; or if there be one, he may be grossly ignorant and incompetent. It is for physicians so located, and for the good of their patrons, that the following hints have been jotted down.

The country physician cannot avoid the necessity of paying some attention to carious teeth, much as he may desire to be rid

of any responsibility connected with them. People *will* neglect proper attention to their teeth till the imperious mandate of pain compels them to seek relief from the dentist, if one be at hand, otherwise the nearest physician. They are generally ignorant regarding the nature of their dental organs, and usually greatly underrate their value; and it is to be lamented that physicians are often in this respect nearly as ignorant as their patients. With the city practitioner this ignorance matters not so much, for he can thrust off all cases upon the resident dentist; in fact he seldom sees them, thus avoiding nearly or quite all the responsibility which his country brethren are compelled to accept.

No reputable physician, in general practice at the present day, is disposed to assume any of the work properly belonging to a dentist, where there is one near at hand, but if there be none, he has no alternative but to do the best he can, both for the immediate relief and the permanent interest of his patrons. Here being a responsibility he cannot avoid assuming, what is his duty in the premises?

Plainly, he ought to place himself in the possession of such information, appliances and tools as are necessary in order to promote the best interests of his patients. He cannot, of course, assume to do the general work of a dentist, but he should do enough in that direction to put many teeth, such as are and have been commonly sacrificed, on the road to a competent dentist and salvation. He ought to be able to determine whether or not a tooth would be, in proper hands, probably salvable. He ought to be prepared, through knowledge and means, to give temporary relief to many aching or sensitive teeth, and temporary protection also, until some one specially skilled may be reached, who can make the relief and protection permanent. He ought to make himself thoroughly conversant with the special and relative anatomy of the jaws and teeth, and their nervous relations with other parts of the head and face. He ought to know the usual time and order of the eruption of both the temporary and permanent sets, the special form and position of each, both before and after eruption; this in order that he may be accurate in diagnosis and operative procedure, and least of all liable to mistake between a temporary and permanent tooth; that he may

know how long the temporary tooth should be conserved, and when it may with advantage be removed. He should be sufficiently familiar with the special structure of each tooth and proper methods of diagnosis to be able to determine, upon examination, whether in a given case pain or uneasiness is caused by sensitiveness of dentine, a nearly or quite exposed pulp or inflammatory action in the alveolar socket (periodontitis). Without this knowledge, he may, on the one hand, sacrifice perfectly salvable teeth; or, on the other, attempt an impossible salvation, to the great discomfort of his patient, and humiliating annoyance of himself. The usual course of ignorance, however, is to commit destruction; the extraction of the tooth, however serious the loss to the patient, is felt to be an ultimatum, and on the principle that "dead men tell no tales," the ghastly heroic remedy is the one oftenest administered. But it is not a remedy to be always willingly administered by a man with a conscience.

But inasmuch as many of the teeth that are brought to us must of necessity be extracted, we ought to know so well the special forms and insertions of teeth, and the special forms of instruments to correspond, that we may always make a correct application of the one to the other, where it is our duty to use this means of relief.

For information, clear and exact upon this subject, every country physician should place himself in possession of the little book, "Robertson on Extracting Teeth," a treatise which is much more in fact than the name would suggest.

Now, what ought he to have in the way of tools and appliances?

As his operative procedures will be largely in the way of extractions, he ought to have a well-selected stock of forceps. (If he has a turnkey, let him present it to his butcher.) It is not at all necessary that he have a great number, but from the multitude of forms, it is essential that he shall know how to select the few he really needs. Many of the instruments placed upon the market are of very inferior quality, in both form and finish; many are applicable only in rare cases, and the purchaser must know how to *reject*, in order to *select*. And here let me say that whatever may be saved by the purchase of the cheaper instruments,

will be but a trifling consideration for the difference in quality and the annoyances that will certainly be experienced in their use. It will be far better to get along for a time with half a set of first-class instruments, than to be in possession of a full array of those of inferior grade, each one of which shall be as "Confidence in an unfaithful man in time of trouble, is like a broken tooth and a foot out of joint."—Prov., 25 : 19.

It will be found also, that for cleanliness and freedom from rust, money can hardly be better spent than for the extra cost of nickel-plating. This is especially true as to forceps, and the extra cost will be about fifty cents each.

Let me remark first in this connection, that by far the greater number of teeth you will feel compelled to extract, as many of you know by experience, will be bicuspid and molars. As physicians, you will seldom have to extract anything forward of the bicuspid above, and not often forward of the molar below. You will be able generally, and you ought to seek to avoid especially, the extraction of all incisors and canines. Except in rare cases the dentist only should take this responsibility. The lower incisors seldom decay, and seldom need extraction by any one, and we must be exceedingly slow to extract lower bicuspid, they being often of great importance for articulation with artificial teeth above. In selecting forceps, therefore, the weight of importance rests with those for molars generally, and upper bicuspid. What instruments are best and most generally available? What shall we buy? Negatively we are to make no investment and place no dependence in the molar forceps, styled "Universal." They are universally unfit for anything, but fracturing teeth at their necks. Whatever you may do without besides, have two pairs of upper molar forceps, right and left; and, in my judgment, there is nothing better than those known as the Harris', designed by the king among dentists, in his day. "Improvements" on his patterns have usually been injuries. Next, a pair of lower molar forceps, of either the Harris or Hutchinson pattern. The numbers of these instruments as manufactured by S. S. White, are: Uppers, 18; lower, Harris', 15; Hutchinson's, 47. Of these, I rather prefer the last named. And here let me say that, both for the sake of convenience, and because whatever instruments he

sends out can be always relied on to be the best of their kind, I shall refer only to those manufactured by S. S. White by number. It is always safe to have an instrument manufactured by this the greatest manufacturer of instruments in the world; and his goods may be ordered directly from either of his four great depots, at Philadelphia, New York, Boston or Chicago.

For upper bicuspid's have an instrument nearly straight, No. 11 or 40, the former preferably, and these will do for any ordinary case of extraction of upper canines or incisors. Here you are, with three pairs of forceps, supplied abundantly for all except unusual cases of extracting upper teeth, and one for all lower molars. Nos. 14 or 21 will complete the list for lower bicuspid's, canines and incisors, in the very few cases where these have to be sacrificed by any one but the professional dentist.

Now, there ought to be, besides, a special instrument for upper wisdom teeth where these are small and overshadowed by the 2d molar, and the purchase of the Harris *dens sapientie* forceps, which is small enough to constitute a child's molar forceps, will be a good investment; or the sub-alveolar forceps, No. 77, recently invented by Dr. Tees, which is a valuable root forceps, and admirably adapted to difficult wisdom teeth extractions, will do equally as well.

For a general root forceps, Nos. 7 and 69 are about equally useful, and either will do for children's small teeth, and for lateral upper incisors, or crowded lower teeth of the second set.

Finally, and to complete the list, in order to meet numerous cases where it is well nigh impossible, or entirely so, to seize a root without nipping of a fragment of the alveolar process, or where there is a hollow crown so deeply decayed as to make fracture almost inevitable by the use of an ordinary instrument, add Parmly's bayonet shaped alveolar forceps, No. 32—applicable almost anywhere. With these eight instruments in possession, and thoroughly familiar with their qualities, you may consider the cases few and far between that you may not in some way successfully meet.

Of course there are many instruments that have their peculiar fitness for rare and difficult cases, but they are scarcely available for any but the specialist. A good instrument is like a good

book in this, that there is nothing like being thoroughly familiar with it—better by far than a superficial and unfamiliar acquaintance with many.

Being instrumentally prepared for extracting, in cases where extracting cannot be avoided, the country physician should have certain other things, very essential to his own success and his patient's welfare, which he can obtain at small additional cost.

First of all, if he has not a physician's operating or invalid chair, he should have some sort of a head rest. This is a matter of necessity, not alone for operations upon teeth, but for examinations of the mouth and face, the nares, the eye, medical and and surgical applications to these, removal of foreign bodies, in short, anything to be done about the head and face. An excellent "rest," adjustable to any common chair, and to any position, can be bought of S. S. White, at a price varying according to style and finish from \$7.50 to \$15.00. It can be conveniently folded and carried into the country, and be often made useful in placing a patient in a position favorable for a critical examination, and accurate medication of the fauces in case of tonsillitis, diphtheria, etc. We all know by experience how nearly impossible it is to get a patient's head properly held by the unskilled assistant.

The next thing I shall mention, which no physician should be without, is a small non-magnifying mouth mirror. A very good and servicable one can be obtained for \$1.00 or \$1.50, and you may pay as much more as you wish for ornamental finish. If you have no laryngoscope you can make this answer some of the purposes of that instrument. You will find it very useful for throwing light into obscure corners of the mouth and throat, and affording views thereof, aside from its essential character as a dental mirror.

Next, pliers. If you are to examine and in any way treat teeth, you need a delicate pointed, nicely curved pair of these; and when you are once used to them you will find them available for many purposes beside; better by far for any delicate use than those generally found in surgical cases. This want may be well and cheaply supplied by purchasing the new "College" pliers for \$1.00.

In order to make anything like an examination of a cavity of decay in a tooth, to determine its depth, direction, and bearing upon the life and salvation of the organ, you should have a few instruments adapted to opening into it and removing the debris. It will be necessary often to cut away the rough edge of enamel overhanging dead dentine, and for this purpose a good sharp chisel will be required. Among the many forms in use by dentists, there is one of more general availability, perhaps, than any other, represented in different sizes by Nos. 43, 44 and 45, of the S. S. W. set. Of these three instruments, No. 45 will answer most purposes, for the mere object of preparing the way for an examination. It can be used right and left, forward or backward, and can be sharpened on an oil stone till worn out. This will cost 60 or 70 cents. To remove the debris, a half dozen excavators and the same number of hand burrs (round) will be required, and of the former, Nos. 1, 5, 10, 18, 24 and 29, of the latter, 2, 4, 5, 7, 8 and 10 would be good selections. Add to this list for opening into nerve canals, a half dozen small drills; and for inserting gutta percha stoppings, Nos. 1 and 4 S. S. W. burnishers. The whole cost of these will not exceed \$5.

Additionally, for purposes of examination, you will need a syringe with a small curved point, for carrying a stream of water directly into cavities, to clean out the chips made by burrs and excavators. A hard rubber syringe good enough for the purpose, can be had for 75 cents.

For drying cavities, either to obtain a correct view for applying medicines or inserting temporary stoppings, it will be necessary to have on hand spunk or spongoid, and absorbent cotton. These articles cost 20 to 25 cts. per package, and their uses like many other things, in the way of dental appliances take a wide range. The physician and surgeon will find in ordinary practice nothing better than this "absorbent" cotton for making nice applications to tender and delicate surfaces, or for drying such parts preparatory to the application. It may be useful for washing or wiping out viscid and unwholesome secretions in cases of sore mouth and throat, in ridding the eyelids from the exudations of conjunctival inflammation, removing foreign substances from within the lid, and for cleansing the nares or external ear.

Although I have never so used it, it strikes me that either spunk, spongoid or the "absorbent" cotton, disinfected, would be excellent for absorbent dressings in the treatment of wounds. I believe the cotton, which is very coherent and readily formed into a firm string, would be excellent for draining punctured wounds. So much for the essential tools and appliances.

Now, a word as to a few medicaments and stoppings, adapted to giving present relief and temporary protection to an aching or sensitive tooth that may be saved. Every physician who treats teeth should have at hand the following :

Creasote and morphia.....0.05 to 4.0

Clove oil " "0.05 to 4.0

Bottle of sandarac varnish.*

Carbolic acid ; dissolved crystals.

A package of gutta percha pellets.

I am strongly averse to advising any physician to have arsenic in readiness for use on teeth. It might, in rare cases, be used with advantage by skillful hands, but I am very sure that in the hands of any but a most competent and careful dentist, it is an agent far more likely to be potent for evil than good. You had better leave arsenic, as an applicant to teeth, in the hands of dentists only, and they had better use it but rarely. For my own part, whenever I find it necessary to extirpate a pulp, I much prefer giving an anæsthetic, and doing the operation quickly and at once with the dental engine, rather than use arsenic.

In this connection, I would remind any surgeon whose eye may follow this communication, of a fact he has probably seen mentioned before : that the dental engine, with its saws, bits, burrs and trephines, is capable of great usefulness in operations upon bone ; in cases of necrosis, some resections, ununited fracture, overriding fragments, removal of tumors, etc., and any surgeon may find it occasionally of great advantage to call this instrument into requisition.

Dr. W. E. Garretson, of Philadelphia, has written recently a monograph specially upon this subject.

* This can be obtained ready prepared, or made by dissolving gum sandarac in alcohol, to a syrupy consistence.

Hints upon examination, extractions, alleviating treatment, and temporary stoppings, will occupy the space allotted to me for another paper.

(To be concluded.)

ARTICLE VII.

ALCOHOLISM; ITS TREATMENT FROM AN ANALYSIS OF ONE HUNDRED AND TWENTY-FIVE CASES (Records of which are to be Found in Mercy Hospital.) By E. C. HELM, M.D., House Physician.

Therapeutically it has been found convenient to divide alcoholism into six classes:

1. Those cases in which the most prominent symptoms are insomnia, restlessness and anorexia.
2. Ditto with considerable gastric disturbance.
3. Delirium ebrosia.
4. Alcoholic stupor.
5. Cases with the premonitory symptoms of delirium tremens, characterized by anorexia, insomnia, restlessness, tremulousness, illusions and hallucinations.
6. Delirium tremens.

Of the nationalities represented, one-half were Irish, one-fourth were American. The rest were of various nationalities. The number of married to unmarried was about equal. The relation of males as to females was as ten to one. Their ages ranged from twenty-two to seventy-eight. The average age was between thirty-seven and thirty-eight. The first two classes comprised about forty per cent. of the cases. The third and fourth classes about five per cent. each. The fifth class comprised fully thirty-five per cent. of the cases. The sixth class, the remainder, or fifteen per cent.

The first item of treatment in these cases was the withdrawal of alcohol in every form (though a small proportion of the cases, who occupied private rooms, insisted upon having from one to three small portions of brandy or its equivalent, during the first

day, and as their demands were, in many cases, seconded by their friends, they were given the brandy, but *only* for the *first* day).

The first class of patients were put in bed, in a quiet room, and given

Pot. brom.....	1		3
Tr. digital.....			25

every three hours. If, as their usual bedtime approached, they were still restless and uneasy, they were given chloral hyd. grms. 0.6 to 1.0 every half hour until three doses had been taken. This usually insured sleep. Should it not, they were given no more chloral before midnight, and then but one, or, at most, two doses.

The second class of cases were treated in much the same way, except that in addition to the above treatment they were given 4 grms. of

R _y Acid carbolici.....			4
Tr. gelsemini.....			
Glycerinæ aa.....	15		
Tr. opii. camph.....			
Aquæ aa.....	50		

before meals.

If there was very much pain in the epigastrium a sinapism usually gave relief. In not one instance did delirium tremens follow either of these classes of cases. The third class of cases were given bromide, chloral and digitalis, with cold to the head, and were kept quiet, even if their arms and legs had to be pinioned. It was, at times, necessary to give the medicines by the rectum or through an œsophageal tube.

These cases usually quieted down in a few hours, and sank into a heavy sleep; upon awakening, they usually passed into either the first, second or fifth class. Very rarely did it occur that delirium ebrosia was followed by delirium tremens.

The fourth class were let alone, merely kept quiet, and given an abundance of pure air. Upon awakening, they usually passed into either the first, second or fifth class (though a few cases passed into delirium tremens), and were treated accordingly.

The fifth class were treated as if in the first class. Sleep was nearly always induced by the before-mentioned remedies. Instead

of sleeping, a few patients perspired profusely with a cold, clammy skin, a weak, frequent, easily-compressible pulse, etc., being that peculiar condition bordering on collapse, in which most of the text-books assert that alcohol is imperatively demanded. Be that as it may, it is a fact that arom. spts. of ammon. (or ammon. carb.) with camphor, *always* produced the desired effect, and that very speedily. After arousing them, the bromides and digitalis would be continued, and with the chloral at night, pushed until sleep was obtained. In not a single case was this treatment followed by delirium tremens or any other unfavorable result. Eighty per cent. of the cases of delirium tremens were in that condition when first seen, and instead of the delirium tremens following the withdrawal of alcohol, it was found that in all these cases they continued to drink until delirium tremens ensued (except in those few cases, i. e., the remaining 20 per cent.), in which the drunken stupor or delirium ebrosia terminated in delirium tremens. In patients with delirium tremens, bromides, chloral and digitalis were freely used, i. e., 1 grm. to 1.3 grm. every two hours until sleep was induced.

There were four deaths in these one hundred and twenty-five cases. One death resulted from an overdose of chloral hyd. which the patient took when the attendant's back was turned. This occurred but a few hours after entering the hospital. The second fatal case was one with acute capillary congestion of the brain and lungs. In this case death occurred a few hours after entering the hospital, indeed, the patient was almost moribund when first seen.

The third case had delirium tremens for several days before entering the hospital. This soon became so violent as to simulate acute mania, if, indeed, it did not terminate in acute insanity. Though he was closely confined in his cell, it was with the utmost difficulty that the nurses could force him to take the medicines. He died the second or third day after entering the hospital.

The fourth and last case of death was a man sixty-five years of age, the last years of whose life had been a continual debauch. He had had delirium tremens many times. He died nearly a month after entering, and with the symptoms of typhoid asthenia.

In all these cases, the bromides were used freely, with no un-

pleasant results. No bad effects were found to result from digitalis. In 1 grm. doses it exerted a wonderfully quieting effect upon the circulation, the heart promptly yielding to its influence by becoming slower and stronger.

Chloral hydrate was found to act more uniformly as a hypnotic in cases of insomnia from alcohol than its rather uncertain nature would have indicated.

Yet alarming symptoms occasionally supervened when 2 grm. doses were taken. Therefore, of late, doses greater than one gram had seldom been given. Chloral, when given at night, was usually given in one gram doses every half hour until three or four doses had been taken. When thus given it was beneficial and gave rise to no unpleasant effects. The value of chloral has been found to be secondary to that of digitalis or the bromides. It will be seen from these cases that there has been no "tapering off" on the supply of alcohol (as in those comparatively few cases in which it was given, it was given but for *one* day, which could hardly be called "tapering off").

The promptness with which these cases have yielded to this course of treatment, has been extremely gratifying, not only to the physicians, but also to the patients.

The majority of the patients, when entering, think they can hardly survive without "tapering off." Many and bitter are their complaints, but after the first day or two they cease to ask for liquors, and many have said afterward "that they never recovered from a debauch as quickly before."

The average duration of their time in the hospital has been nine days, but by eliminating five cases who, for other reasons remained from one to three months, it will cut this average down to seven days.

MERCY HOSPITAL, CHICAGO, Nov. 20, 1879.

AN interesting article on the action of pyrogallic acid in lesions of the skin and mucous membranes, from the pen of Dr. Rosa H. Engert, of this city, appears in the *Wiener Medizinische Wochenschrift*, Oct. 11, 1879, p. 1084.

Clinical Reports.

NOTES FROM HOSPITAL PRACTICE.

ARTICLE VIII.

Two Cases of Traumatic Tetanus.

I.—W. M., laborer; age 16; native of U. S.; was admitted to Cook County Hospital June 5th, 1879.

On admission, the patient gave the following history: His health had usually been good. In childhood, he had small-pox. One of his brothers is said to have died of tetanus.

Ten days previous to admission, he was kicked on the left side of the head by a horse. He did not lose consciousness, but, with the aid of a companion, walked to his home, a distance of 400 metres. Dr. E. W. Lee was called, who found an irregular, lacerated wound on the left side of the face. The wound was closed with interrupted needle sutures, and was dressed with a carbolic acid lotion. The needles were removed the third day. The wound did well, and everything was favorable, until June 1st, six days after the injury, when Dr. Lee saw him, and found no unfavorable symptoms. On the 31st day of May, it may be noted, there was a marked fall in the atmospheric temperature. To this may possibly be attributed some agency in bringing on the tetanus. Soon after Dr. Lee saw him on the 1st of June, the symptoms of tetanus began, with slight stiffness about the jaw, and slowly progressed until June 4th, when the patient came to Dr. Lee's office. He had then had some difficulty in swallowing for a day or two. Dr. Lee recognized symptoms of tetanus, and next day brought him to the hospital. When admitted, the patient was fairly nourished. He complained of stiffness of the

muscles of the neck. He answered slowly and with difficulty to questions. When he attempted to speak, the muscles of the mouth were thrown into spasmodic action, the features assuming at times a true risus sardonicus. He could only separate his teeth about one centimeter, and swallowed with difficulty, in consequence of the spasmodic action of the muscles of deglutition. The circulation was rather feeble and the extremities were cold and bluish. The wound was in a healthy condition.

The patient was placed in bed and rendered comfortable. His temperature on admission was 36.6; pulse 84 per minute, and somewhat feeble.

A cathartic was at once given. He also received :

R Potassi bromidi.....	3	00
Chloral hydrates.....	1	00

every four hours. Good nourishment was given, in the form of milk, beef tea, etc. A record of the temperature was kept, which was :

June 6th.....	P. 80, T. 36.3
6th, p. m.....	P. 76, T. 37
7th.....	P. 72, T. 36.5
7th, p. m.....	P. 72, T. 37
8th, p. m.....	P. 76, T. 37.1
9th.....	P. 88, T. 37

The stiffness of the muscles was constant, and slight spasms, affecting chiefly the muscles about the mouth and those of the neck, were excited upon attempting to speak or to swallow.

June 11th, he had an attack in which there occurred spasmodic closure of the mouth and spasm of the respiratory muscles, so that he became quite blue in the face. At the same time, there was bending back of the head and spasmodic action of the muscles of the back and extremities, producing slight opisthotonos. After the nurse pried open his mouth with a spoon, he breathed easier, and the spasm passed away. At noon of June 11th, he had another attack, exactly similar to the one just described. He passed the remainder of the day and night and the day of June 12th without any more serious symptoms than he had before the 11th. His temperature was normal, but his pulse was somewhat quickened. In the evening of the 12th, he had an attack more

severe than any of the preceding. After this attack, 8 grams of bromide of potassium were at once given, followed by 2 gram doses every two hours. He was quiet during the night and slept some. On the next morning, he had a fourth attack.

As the case threatened to become very serious, the hypodermic injection of calabar bean was begun. The following solution was used:

R _x	Ext. Physostigmatis	50
	Glycerinæ	8 00
	Aquæ ad.....	32 00

M. Sig.—Inject 1 C. C. every two hours.

1 C. C. of this solution contains about 0.015 grams of the extract. The use of the bromide and chloral was also continued.

From this time, he improved considerably. No more paroxysms occurred. Although the calabar bean was used until there was considerable depression of the circulation, no contraction of the pupils occurred.

The wound healed rapidly, and he was discharged recovered on the 30th of June. His pulse was somewhat rapid after the violent attacks began, ranging from 96–124 per minute, but his temperature remained about normal.

II.—Of the second case I have not full notes, but the history, omitting dates, is briefly as follows. The patient, about a week before admission, received a crushing injury of the foot without any laceration of the skin.

About 36 hours before admission, he began to show signs of tetanus, and received a mixture of bromide of potassium and hydrate chloral.

After admission to the hospital, he received hourly 0.008 grams of the alcoholic extract of calabar bean by hypodermic injection, and 16 grams of whisky by the mouth, and once in two hours he received bromide of potassium 2 grams, and hydrate of chloral 1 gram. In addition, he had plenty of beef-tea and other nutriment. The paroxysms which amounted to slight opisthotonos, occurred once in half an hour, and at other times, in consequence of irritation. About 48 hours after admission, and eight hours before death, he began to have difficulty in swallowing, and some

hebetude of mind. About an hour before death he had a somewhat severe paroxysm, followed by rapid breathing, rapid and feeble pulse, and unconsciousness. Tracheal rales were soon heard, and death occurred in about an hour. No more marked paroxysms occurred, but there was still some tonic spasm of the muscles shortly before death.

A most interesting question is suggested to me by these two cases, viz., what shall we take as evidence of the toxic effect of calabar bean poisoning in cases of tetanus?

In the first case, while symptoms of marked depression occurred, no contraction of the pupil was obtained. Was the depression due to the calabar bean?

In the second case, the manner of death was very curious. The spasms had not been severe and long continued enough to produce fatal exhaustion, and there were no signs of any considerable asphyxia. Could the cause of death in this case be calabar bean poisoning? If so, why did not relaxation of the muscles occur?

It is conceivable that in tetanus the activity of the spinal cord may be so increased, that an amount of calabar bean sufficient to paralyze the heart, may be insufficient to produce relaxation of the spasms.

G. H. SALISBURY.

TRI-STATE MEDICAL SOCIETY.—At the recent meeting of this Society, composed of members from Illinois, Indiana and Kentucky, Dr. H. B. Buck, of Springfield, was chosen president, and Louisville, Ky., selected as the place for holding the next annual meeting. The recent meeting at Evansville was well attended, and many interesting papers were read. The paper that will probably attract more attention than any other was read by Dr. Reuben A. Vance, of Cincinnati, on lithotrity.

SPECIALTIES of practice are one thing, and in the main, we think, undesirable; specialty in study is quite another matter.—*London Lancet*.

Society Reports.

ARTICLE IX.

CHICAGO MEDICAL SOCIETY. Meeting Nov. 3d, 1879. Dr. ANDREWS, President, in the chair.

Dr. L. H. MONTGOMERY reported a case of spina bifida and hydrocephalus, which had some interesting points.

The child was born Aug. 6th, and died Nov. 2nd, 1879. The spinal tumor was about the size of an orange, was in the lumbar region, and covered with a superficial ulcer, was indistinctly lobulated, and opened externally by a fistulous tract. At first it was quite elastic, especially with the child in an upright position; but when the child was laid in a horizontal position it was soft and flabby, becoming tense, however, when the child cried. There was no paraplegia for some weeks after birth. After the superficial ulceration had healed, under appropriate treatment, and the fistula closed, it was noticed that the head began to enlarge. Compression of the tumor below, caused the cranial walls to bulge, and pressure on the vertex caused the tumor to distend. For some time the child appeared to thrive, but after a time the hydrocephalus became more and more marked, and the child finally succumbed to asthenia, dying at the eighty-fifth day.

In the discussion which followed, it appeared to be the general opinion that tapping and external pressure yielded the best results in the treatment of spina bifida.

MEETING NOV. 17th. Dr. ANDREWS in the chair.

Drs. FENGER and SALISBURY presented a communication on fatty embolism of the brain and lungs, following fracture. They

reported a case which followed a fracture of the femur in a middle-aged woman, and Dr. Fenger exhibited a number of sections under the microscope, giving evidence of the lesion. The paper gave a general résumé of the subject, and will appear in the JOURNAL AND EXAMINER.

Dr. R. PARK related a case of sudden coma, with fatal termination, a comparatively short time after operation for caries of the tarsus, which he thought was most rationally accounted for on supposition that there had been a fatty infarction in the lungs, with consequent anæmia of the brain, the symptoms corresponding well with those described in the paper.

CATGUT DRAINAGE. By Jules Boeckel. (*Revue Méd. de l'Est*, June 1, 1879.)

Dr. Jules Boeckel, having used the catgut drainage in a number of capital operations, insists that it can be employed with advantage over the ordinary rubber drainage tube. He used nine catgut threads, the ninth being wound round the eight to keep them together, the two ends being fastened together by a piece of silk. In every case reported, the catgut used as drainage became absorbed after about the sixth day. The catgut, he claims, affords sufficient drainage; it does not act as a foreign body as it is readily absorbed; it does not require the attention which the ordinary rubber tube does; and the separation of the tissues is reduced to a minimum. Theoretically, he says one single catgut thread should be sufficient. Another advantage claimed for it is that compression can be made to any extent so as to bring the deeper parts in close apposition without fear of obstructing the drainage.

WE join the *Southern Clinic* and the *Louisville Medical News* in asking the question, Who is or was Dr. F. A. Ticknor, of Columbus, the author of "Little Giffen, of Tennessee." The poem is worthy to be ranked with some of those from the pen of another member of the profession, Dr. O. W. Holmes.

Domestic Correspondence.

ARTICLE X.

Editors CHICAGO MEDICAL JOURNAL AND EXAMINER :

Quite a number of New York medical men spent their summer vacations abroad, taking advantage in this way of the several medical congresses which met at Cork, Amsterdam, and Montpellier. No one made a more triumphal progress, or came back with more honors than did Dr. Sayre. With his plaster of Paris bandages, his suspension apparatus, and his son Charley, he straightened out the crooked, raised the bed-ridden, and captured all his audiences. There was a little coldness, to be sure, amongst Parisian surgeons; and an English medical man wrote something, based upon a hundred cases, that was scarcely favorable to our countryman or his jacket. This, however, was nothing compared to the overwhelming tide of enthusiasm which met the eminent doctor almost everywhere. Dr. Sayre is certainly a remarkable man, and has already had a distinguished career. With study, common sense, and an impetuous energy in asserting his beliefs, he has ridden to fame upon one pathological idea and two therapeutical principles. The supremacy of traumatism over scrofula, the necessity of rest, and the importance of extension, are the ideas which have controlled his surgical opinions and methods, and by the vehement utterance of which he won his reputation. There have been, of course, certain minor things, such as reflex action and the prepuce, which have broadened as it were, his views, and ornamented with lighter touches his career. The qualities of his character are strongly marked and easily seen. He has excellent judgment, a practical rather than studious mind, and much mechanical skill. His quick apprecia-

tion of what is valuable in therapeutical appliances, is much greater than his own inventiveness. He appropriates more than he originates (unless we except his style of expression). But he champions what is good, and generally proves to others his correctness. Dr. Sayre's reliability has sometimes been called in question. His success is said to be too uniformly remarkable.

There is probably no doubt that in the eloquence of his clinical expositions, or in the heat of his spirited objurgations, he sometimes wanders from the hackneyed limits of the actual (I hope I have put the thing mildly enough). The true story of clinical cases is often embarrassing to any clinical teacher who wishes to present a disease in all its classical and rotund completeness. And if a man receives from doting mothers three letters full of gratitude and terms of effusive endearment, he is apt to think that there have been six. Cases whose hospital record is "discharged cured," will come back sometimes with a terrible limp and pain in the hip. It is rumored, indeed, in the orthopedic wards of Bellevue Hospital, that hip-joint disease never is cured with any satisfactory result; and this expresses a considerable amount of truth.

However, inaccuracies of statement often imply only a superabundant enthusiasm and have no further moral significance. No one can deny that Dr. Sayre has done work which justly entitles him to the highest honors of the profession as well as the gratitude of his fellow men. I should not omit to mention that no one, however poor, is ever turned from his office and that the amount of private charity thus dispensed is very great indeed.

The New York medical colleges have opened with their usual quota of students. Bellevue Hospital Medical College, as is now well known, has announced a change in its course. After the present session it will be graded; annual examinations and three years attendance upon lectures will be required.

It requires much courage for a school like that of Bellevue to make such a change, and great credit is due the faculty, both on this account and because its example is so conspicuous that the other city colleges cannot avoid eventually following it. There is a great cry just now for higher medical education and the colleges are beginning to show that they feel it. It is absurd to

expect that every medical graduate shall be a gentleman of wide accomplishments and elegant culture, but there are just now two evils which we have to face: a great surplus of young graduates and a great deficiency of education both general and professional amongst them. Medical colleges should be made to remember this and shape their course accordingly. As they will only do it partially, however, we must rely on the law of supply and demand to settle the question eventually.

At a meeting of the County Medical Society last spring, a paper on laryngeal phthisis was read by Dr. Bosworth, in which he announced the possibility of its cure. In the discussion of the subject afterwards, a number of prominent laryngologists took part, and turned the question finally to the propriety of performing tracheotomy in the disease. No one was positively in its favor, but a number of cases tending to show that it was justifiable and even imperative were quoted. Since then several other cases have been brought to my notice. One of these, operated on by Dr. Oppenheimer, of the New York Eye and Ear Infirmary, seemed to show the operation to be absolutely curative in its effect. Two others gave much relief to the patients. From cases of which I have had a more personal knowledge, however, it has seemed to me that the good results of this operation are much exaggerated, and I believe that the growing feeling in its favor is a dangerous one. It is liable to give the patient a shock from which he does not rally. It introduces air directly, unsifted and cold, upon bronchial mucous membrane. It gives the patient a great deal of annoyance, and is generally thought to be a terrible thing by the friends. But more than all, it makes expectoration difficult, and the mucus accumulates in the cavities of the lungs, to the discomfort and injury of the patient. I don't believe that the operation should ever be done, unless the indication to secure euthanasia is very strong.

You have, I hear, a very active health board in Chicago. Ours of this city has been boasting of what it has accomplished, during the present summer, in the way of saving children's lives. By its system of tenement-house inspection, by sea-side and country sanatoria, by water excursions and land excursions, a great deal of fresh air during the summer has been introduced

into the lungs and system of the rising generation. In 1875, the deaths from diarrhoeal diseases, mainly amongst children, were 2,997; in 1876 they were 3,060; in 1877, when sanitary measures began, they were 2,657; in 1878, about 2,052; and in 1879, about 2,084. Thus there has been a decrease of nearly a thousand deaths amongst the children, with a corresponding diminution in the sickness rate. So much for sanitary science. It should be remembered, however, that a great deal of this is due to private charity, and that the health board was only one of the agents. Just now, sanitary science and State medicine are "booming," and enthusiastic men are beginning to give us to understand that if they will only be allowed full swing, sickness will be abolished and society become immortal. This sounds very nice, but it will be terrible for the doctors. We can encourage hygiene until it has reduced the mortality to fourteen or fifteen per thousand. The medical profession must then join anti-sewerage and anti-vaccination societies, and become the deadly enemy of sanitary progress. What would medicine be without typhoid-fever, or if the *bacillus malarice* were forever exterminated?

C. L. D.

ARTICLE XI.

GELATINE SUPPOSITORIES.

MESSRS. EDITORS:—Permit me to enquire through your pages whether physicians have often obtained satisfactory results from the use of suppositories prepared with gelatine. In two cases where I used them, they failed to dissolve. In one of these cases the suppository remained in the rectum one hour, and in the other all night, without any appreciable alteration in size and form.

E. F. I.

DR. E. S. GAILLARD, editor of the *Richmond and Louisville Medical Journal* and of the *American Medical Bi-Weekly*, has removed to New York, and taken his journals with him.

Reviews and Book Notices.

ARTICLE XII.—CONSPECTUS OF ORGANIC MATERIA MEDICA AND PHARMACAL BOTANY. By L. E. Sayre, PH.G.

This work reminds one of the statement of Prof. Huxley, that if he had power he should cut out ruthlessly botany and materia medica from the course in a medical college. The book contains just that portion of materia medica which Prof. Huxley declared he would cut out, viz., "a knowledge of drugs and what they come from, and the animals and plants that yield them." Certainly, when we consider the short period devoted to medical education, and the vast number of facts which need to be learned about the physiological and therapeutical action of remedies, there is no time for the medical student to spend upon botany or upon the physical properties of drugs, except so far as they have some application to the art of healing. For the pharmacist, the book has undoubtedly a useful place to fill.

J. H. S.

ARTICLE XIII.—THERAPEUTICS, MATERIA MEDICA AND TOXICOLOGY. H. C. Wood. Third edition.

This work has obtained an acknowledged place as the most complete work on the physiological action of remedies, in the English language. The value of the work to the practical student would be much increased by adding to the discussion of the physiological action of every remedy a summary similar to that which follows the account of the action of digitalis on the heart. The third edition contains some new articles, and other articles have been re-written to keep pace with the progress of science. The size of the volume is increased by about fifty pages.

J. H. S.

ARTICLE XIV.—FIRST STEP IN CHEMICAL PRINCIPLES. By Henry Leffmann, M.D., Lecturer on Toxicology in the Summer School of Jefferson Medical College.

In a small book of fifty-one pages, the author has given a succinct statement and careful explanation of the principles of chemical nomenclature, notation and the working out of reactions. To understand and remember a chemical formula, and to write a chemical reaction, are frequently very difficult for beginners in chemistry, and the ingenuity of the teacher is often severely tasked to explain the principles involved. This book will doubtless prove a help to both teacher and pupil.

J. H. S.

ARTICLE XV.—CHEMISTRY, GENERAL, MEDICAL AND PHARMACEUTICAL. Attfield. Eighth edition.

This work is an extremely useful book of reference for the practitioner, containing the whole of the chemistry of the pharmacopœias of the United States, Great Britain and India, and is, at the same time, the best laboratory guide for medical students. The eighth edition contains new matter, which is represented in the index by three hundred new references, and increases the size of the work by twenty-three pages.

J. H. S.

ARTICLE XVI.—GUIDE TO THE EXAMINATION OF URINE, With Special Reference to the Diseases of the Urinary Organs. By K. B. Hoffman, Professor at the University of Gray, and R. Ultzmann, Docent at the University of Vienna. From the second edition. Translated and edited by F. Forcheimer, M.D., Professor of Medical Chemistry at the Medical College of Ohio, Cincinnati.

The ideal of a work on urinalysis, for the practical physician, has not yet been reached. We have several exhaustive works, but what the physician needs is a work which shall give him a clear exposition of the methods which he can use in daily practice. Especially is this the case with quantitative determinations. Very few physicians have the time or skill to use gravimetric or even exact volumetric methods of analysis. At the same time, it is possible for them, and also convenient, to apply certain approximative methods which, although not strictly

accurate, are sufficiently so, for application to chemical investigations. These methods are almost entirely omitted by the work before us, while exact gravimetric and volumetric processes are given. This does not justify the statement in the preface that "every test, every method, is brought home to the student and physician for use in practice." The work seems to be well translated, and is a very readable book. The addition of a few simple tests, to supply the deficiencies above mentioned, would make it an excellent work.

J. H. S.

ARTICLE XVII.—HYGIENE AND PUBLIC HEALTH. Edited by Albert H. Buck, M.D. New York: William Wood & Co. Two volumes. Octavo.

These two volumes form a work which will be welcomed by a large and increasing class of men. To the pin-feathered sanitarian, picking up his first crumb at the public crib, it will prove a friend in need—a friend indeed. By the student of nature, who delights in patient search for the ultimate causes of phenomena, it will be cordially received as a contribution towards the advancement of science. It will be esteemed by the philosopher as a mile-stone on the pathway of progress. Whatever may be said of its contents, it cannot be denied that it is an epoch-making book and its influence will be far-reaching and long continued. Fortunately, therefore, it is a work which in the main deserves commendation. Formed, as it is, by a series of unconnected essays, which have been prepared by different authors, treating of a great variety of subjects, there is, necessarily, great inequality of value in the different sections of the book. Certain topics seem to have been too lightly touched, while others have been elaborated out of proportion. Still, every part is instructive, if incomplete; and suggestive, if inaccurate.

The introduction forms an array of sixty-three pages, by the well-known Dr. J. S. Billings. It is a very readable paper, quite free from the extravagances which characterize those sanitary enthusiasts whose effusions provoke the inextinguishable laughter of gods and men. In fact, the doctor does good service in calling attention to the errors of judgment and of prevision into which such people continually fall, to the great detriment of

the good name of sanitary science. He clearly shows the unwisdom of expecting too much from public sanitation and points out with great clearness the difficulties—pecuniary and the like—with which communities have to contend when they undertake the work of sanitary improvement. He specifies, also, the fact—too often overlooked—that the health and longevity of the members of a given community cannot be greatly affected by improvement of its sanitary condition. It is true that the introduction of pure water or the construction of extensive drainage works will, at first, in unhealthy locations, produce a very considerable reduction of the local death-rate. But this is only temporary. In a short time new causes become operative to a degree that compensates for the removal of the old; and something near the former rate becomes established. If, by vaccination, you diminish the mortality from small-pox, you soon have an increase from scrofulous diseases. If the mortality from infectious fevers decreases, the deaths caused by violence, by accident, by intemperance and vice increase. Suppress disease; old age and starvation will soon fill up the contingent of death. This necessary consequence of the co-relation of forces is too much ignored by our sanitary friends. It has not escaped the notice of statisticians who are concerned with life insurance. They declare that, during the past forty years, in which sanitary science has figured so largely in England, the death-rate has remained unchanged. This, however, need not discourage our efforts in behalf of improvement, for, if we may not hope for a longer average duration of life, we may at least hope to live more agreeably. The majority of young women would prefer to die of consumption rather than to live adorned with the scars of small-pox; and even if an epidemic of cholera does not enlarge the aggregate of mortality, pure water is a comfort that may not be despised. It is, certainly, more respectable to die of pneumonia than of yellow fever. Quite unnecessary, therefore, is the effort which writers are recently putting forth, in view of the above-mentioned statistical fact, to show that even a stationary death-rate is owing to sanitary measures and is, therefore, a positive gain to the cause of public health. This sounds wonderfully like the common professional plea, that, although the patient had not recov-

ered his health, he certainly would have died if it had not been for the doctor's medicine. The fact is simply this: an equilibrium between the forces that maintain life and the forces which tend to death has, during the last forty years, been established and maintained in England. Such an equilibrium tendency is a law of nature everywhere and it is impossible for the human will to effect any great or permanent alteration of that equilibrium. A new sanitary superintendent, a general civic cleansing, an improved water supply, the cessation of a world epidemic, may affect the equation for a brief period, just as a conjunction of the outer planets may, for a few months, deflect the pathway of the earth around the sun; but the general course and result of forces is, in the long run, the same. And, as in the universe there are vast and varied forces, which produce slow and cyclical changes among the heavenly bodies, such as are implied by the changes which have taken place upon the earth during the lapse of geological time, so the public health is subject to vicissitudes of equilibrium which require centuries for their evolution and which are quite beyond the control of human will. For example, a review of the social history of the race shows that in Europe, for many generations, long before hygiene was ever thought of, the public health has been rising, the average duration of life has been growing, even in communities where social conditions and habits had undergone no change other than the natural outcome of increasing intelligence, morality and civilization. These are the great agents of improvement and to them must be ascribed the amelioration of the condition of the masses in Europe which has taken place during the past three hundred years. Stringent sanitary legislation, "shot-gun" quarantine, placards on houses, official inspection and supervision, in short, all the horrors of barbarous despotism, were utterly unavailing against the leprosies and pestilences of antiquity. It was the sun of civilization, opening to view the waste places of the earth and revealing space and liberty, stores of food and unheard-of comfort for the half-starved serfs of mediæval Europe, that banished leprosy and the plague from that quarter of the earth. It was the entrance of mankind upon that ample career which was opened by the discovery of America that accomplished results which the

combined authority of law and religion could never effect. If history teaches anything, it teaches the lesson that public health depends not upon the existence of a learned and privileged class who shall govern men in such a way as to make them healthy. That method has been sufficiently tried and has failed. Public health depends rather upon the universal diffusion of knowledge and of wealth sufficient to put that knowledge into practice. As a community grows in wealth and intelligence, that is, as it becomes emancipated and free from the dominion of even a benevolent despotism, so will rise its standard of health and comfort. The highest aim, therefore, of the philanthropic sanitarian should be the diffusion of knowledge and the general distribution of property. Everything else will follow as a matter of course. By this method, only, can success be attained; but it is exceedingly difficult to get ordinary men to trust in the operation of the natural laws of the universe. Even a thinker ordinarily as clear-headed as Dr. Billings cannot always rise above the official bias due to his position, as appears from his utterance regarding small-pox (p. 8.) to the effect "that it should never appear on the death register; yet, to obtain such an universal and satisfactory vaccination and revaccination of each individual as will give this security, there is necessary the decided and persistent interference of government to an extent which has not yet been provided in this country except in a few limited localities." Now in England and on the continent of Europe, the government does interfere to secure the vaccination of everybody; but with what success, the history of the frequent local epidemics of small-pox abundantly shows. Our own experience in this country, where compulsory vaccination is not practiced is at least as favorable as the result of paternal government. And in countries where the compulsory method is in vogue, there is always an angry resistance manifesting itself against the law, which maintains the prejudices of the ignorant against the practice. Witness the English anti-vaccination leagues and literature. The best safeguard against the spread of small-pox is an occasional outbreak of the disease. Compulsory legislation can accomplish nothing better.

The official bias of the author again shows itself, in the very

cursory manner with which he dismisses the matter of personal hygiene — (pp. 11, 12). This, by far the most important factor in the work of advancing the public health, seems to have very few attractions for the professional sanitarian, probably because it must be exercised in a sphere beyond the reach of public officials. It is, however, the agent which has effected the greatest part of the physical improvement of the human race; and to the diffusion of the knowledge upon which it depends must we look for all real progress in the future. Such diffusion will accomplish all, and more than all, the good results that might be expected from working "in accordance with the laws of natural selection, [to] prevent the reproduction of weak and unhealthy persons" It is indeed true that the immense results which are possible in this department of effort "must be effected by parents and teachers; by guiding the children under their charge into proper mental and physical habits."

The second chapter of the introduction is devoted to the "Causes of Disease." These the author divides into four classes: 1st, hereditary; 2d, physical and chemical; 3d, organized or vital; 4th, mental or emotional. Of these the first is considered as belonging chiefly to the unavoidable causes of disease. The second class is left for discussion in the special sections of the work. The fourth class is considered too large and difficult for discussion in a manual like the present. "The third class of cases (p. 13), viz., those which are known or supposed to be organized or vital in character, is the most important of all in public hygiene, and hence we shall dwell upon it a little." About twenty pages, accordingly, are devoted to a brief, but lucid summary of recent literature on this subject. The author adopts the German classification into:

- A. Parasitic diseases.
- B. Contagium diseases.
- C. Miasmatico-contagium diseases.
- D. Miasmatic diseases.

That certain diseases, such as scabies and trichinosis, are purely parasitic is beyond a doubt. That certain diseases may be propagated by the transfer of material particles from the body of a diseased person to the body of a healthy individual is also

beyond a doubt. That certain diseases are produced by a similar exchange between certain soils and living bodies will not be questioned. The only debate arises over the nature of such transferable particles. Are they organized, living germs, or are they particles of non-living, decomposing organic matter? That is the question. Dr. Billings criticises very freely the extravagancies and the confusion of ideas which are the principal characteristics of the advocates of the so called "germ-theory." He also very wisely condemns the notion which some have advanced, to the effect that it is a matter of no consequence, so far as sanitary administration is concerned, whether the germ-theory be right or wrong. It is a matter of great importance, for if the germ-theory, as ordinarily preached, is incorrect, then much that is now considered of prime importance in sanitary administration will sink into insignificance in comparison with personal hygiene.

As just now remarked, there is no question as to the dependence of certain diseases upon the invasion of the tissues by certain parasites. But regarding certain other diseases there is still an active controversy. Are diphtheria, splenic fever, relapsing fever, hog-plague and the like diseases to be ranked as idiopathic, endogenous diseases, or are they to be always charged to the entry of infective spores into the blood? Dr. Billings inclines toward the latter view of the subject, evidently almost persuaded by the clamor of Pasteur and the microscopists of his school; but the doctrine of these observers does not account for the existence of cases of splenic fever without the presence of bacteria, as reported by P. Bert, Joffroy, Hayem, Trosbot and others. Pasteur, it is true, denies the name of splenic fever to such cases, calling them cases of septicæmia; but his evasions and his failures to demonstrate in puerperal fever the parasite which he had announced as the infective agent, along with his unsatisfactory notions regarding the relation of microphytes to the processes of fermentation and putrefaction, render one very slow to accept as an established fact the parasitic theory of these diseases. The same thing may be said of the experiments by cultivation and inoculation as practiced by Koch and by Klein. They cultivated successive generations of poisonous bacteria and succeeded in producing

splenic fever by inoculating animals with nine or ten consecutive crops of the parasite. This certainly indicates a power on the part of the bacteria, to produce a substance poisonous to the inoculated animal, but it does not prove that the original source of the poison resided in bacterial germs. It is acknowledged that the harmless bacteria subtilis and the poisonous bacteria anthracis are, for all practical purposes, morphologically identical. Now the real question is this: Are bacteria anthracis anything more than the ordinary bacteria subtilis undergoing a process of disease, resulting from immersion in the liquids of a specifically diseased animal. We know that the form, and modes of growth of parasitic microphytes may be varied almost beyond description by alterations of the fluids in which they are developed. If now, a family of bacteria are infected by the disease of their host, it would not be at all singular if they should transmit a hereditary disease to their offspring during the process of "cultivation." But, inasmuch as hereditary diseases tend to self elimination, it is necessary, in order to decide the question at issue, to pursue the method of cultivation and inoculation with successive generations to far greater length than has yet been done. Nine or ten generations might very well be insufficient to give opportunity for reversion to a healthy ancestral type, when, perhaps, a hundred successions might exhibit the process in the clearest manner. Until some such crucial test shall have been applied, we must side with Billroth in the opinion that these microphytes may be the carriers, but not the original sources of the infective virus. In fact, it is only by continually keeping in mind the broad generalizations of Liebig as expressed in his doctrine of fermentation, that it is possible to reconcile the conflicting hypotheses of different writers, and to clear the doctrine of infection of all the rubbish that has been heaped about it by one-eyed microscopists. Great confusion has arisen out of the failure to distinguish sharply between organized bodies and their products. A very large proportion of the advocates of the germ theory seem to make no distinction between the properties of organized matter and of organic matter—between a living cell and its excretion; consequently we find such writers making no distinction between the activities of these very different entities. Because a cell may

multiply itself by fission or otherwise, they seem to think that the waste products thrown off by a cell may multiply themselves indefinitely in a similar manner; but we know how cells multiply themselves, and we know something of the way in which defected, non-living organic matter behaves itself. The numerous ferments which are elaborated by specialized cells of the body, though non-living, are exceedingly potent—even after all connection with the generative cell has long ceased—to effect change in protoplasmic matter, both outside of the cell, as in the process of peptic digestion, or inside of the cell, as when splenic ferment reaches and modifies the function of pancreatic cells. In all such cases the active ferment operates by exchange of molecular motion, and the ferment is reproduced, not by any generative process, but by the continued life and modification of cells whose activity is sustained by the remote consequences of the action of the ferments which they have produced. The same process goes on with new forms of intensity in certain diseases. The cells of a variolous patient produced small pox virus. That virus invades the blood of a healthy subject; it modifies the nutrition of every cell in his body until they too yield a virus which exactly resembles the first. A cow becomes plethoric, and develops splenic fever. The morbid cells of her tissues excrete a poisonous virus which pervades all the liquids of the body, and even infects the bacteria which soon swarm among the non-resistant tissues. Microphyte and microzoon (animal cell) then alike produce the poison and discharge it into the blood and lymph of the animal until everything connected with the victim is alike infectious. In a similar manner the contagium of scarlet fever and of kindred diseases may be supposed to originate and to be multiplied. In cholera and yellow-fever it is possible that these non-living cell-excreta may need a farther change outside of the body before their full power for evil can be developed. Viewing the subject in this way, we can reconcile the doctrines of Liebig and of Pasteur, and can obtain a much clearer notion of the manner in which infective diseases may originate and are propagated, than if we adopt the so called “germ theory” with all its visionary outfit of invisible spores and parasites too small for sight, yet large

enough to drain a fever-patient of his fluids till he must cry continually for water to make good the loss!

The necessary limits of a review like the present render it impossible to elucidate this subject. We can only throw out these few hints which may suggest thought to the initiated, but which, of course, can convey no intelligible idea to those who are destitute of scientific training. The whole search for "germs," as conducted by the majority of the microscopists who are continually cackling over new found forms of morbid growth in the blood of all manner of patients, affords a striking illustration of the ease with which one may fail to discover the simplest thing for which he has not been trained to look. In their eagerness after bacteria they have quite neglected the cells of the body which in the vast majority of diseases, if not in every instance, are the seat of the essential morbid processes, and the sources of infective matters which are discharged into the liquids of the body. This being the fact, a little thought will enable one to see how much more important are measures which tend to sustain the vitality and the normal function of the cells of the tissues than any simple attempt to keep bacteria away from the person. In other words, the personal hygiene and therapeutics, which some of our enthusiasts are so disposed to undervalue, are of far greater importance than any process of quarantine against "germs." Dr. Ezra M. Hunt is almost the only recent American sanitary author who seems disposed to give rightful prominence to this branch of hygiene; and yet it is the principle which underlies such measures as vaccination and all our rational therapeutics. Once possessed by a comprehension of this great truth, it will no longer be living matter, but dead, decomposing matter, which we shall seek to avoid. We shall think less of antiseptics and more of abundant oxygen.

The third section of the introduction treats of the "Jurisprudence of Hygiene." This is, perhaps, in some respects, the least satisfactory portion of the paper, for the very sufficient reason that sanitary legislation is yet in its infancy; and, having been, so far, for the most part, dictated by half-educated enthusiasts, and interpreted by lawyers and judges who are more or less under their influence, there is yet no complete and final

adjustment of the subject upon a basis of true science and sound philosophy. One of the very first propositions with which our author starts, viz., that it is necessary in this generation to establish public hygiene upon the foundation of utilitarianism (p. 35), is a very good example of the narrow philosophy which guides our sanitarians. *Expediency* and *utility* may be allowed to suggest motives to the common herd, but the highly-gifted few—the benevolent despots whom we are advised to set up over ourselves—must act upon a higher level than is furnished by these narrow motives, if they wish to reconcile us to their dominion. They must ask what is in conformity with the known laws of the universe—what is *right* and what is *wrong*—if they wish to secure a wide and lasting influence with the public. This is where so much of our sanitary administration is weak. It busies itself too much with the utilities; and utility, for the average sanitary official, too often relates merely to the bearing of particular measures upon his chances for keeping his hand in the public treasury. But this is not all. As President Woolsey (p. 36) and Herbert Spencer, and numerous other writers upon the philosophy of government, have clearly shown, the whole matter of sanitary legislation for the benefit of the public health is muddled by the attempt to accomplish with the same machinery of government and taxation two things which cannot thus be confused without injustice. As Bastiat says: “The government cannot organize labor and education and public health and charity and such things without disorganizing justice.” It is the duty of the government to provide uniform protection for the lives, liberties and property of all its citizens, and consequently it is the duty of the government to tax its subjects with perfect uniformity. Each citizen should pay the same amount for the police protection of his life and liberty that every other citizen pays. For the protection of his property each one should pay according to the value of that property. If it costs ten dollars to protect the lives of A and B, then A and B should pay five dollars each. If it costs one hundred dollars to protect their houses and other property, and if A owns nine-tenths of that property, then his just proportion of the total tax for person and for property is ninety-five dollars, while B should contribute but

fifteen. That is the just way to raise money for the support of government. But when it is proposed to tax people for the protection of their health, it becomes impossible to adjust such a tax with anything like uniformity, and it becomes an unjust tax, because bearing with the utmost inequality upon individual citizens. Because Mr. Smith is rich, and chooses to use his income in such a way as to preserve the health of himself and his family, it is no reason why he should be taxed to also pay for the improvement and supervision of the families of poor Harry and drunken Dick. Benevolence is no legitimate part of the function of civil government. All governments undertake to dispense more or less of compulsory charity—a hereditary custom derived from the despotic ancestors of existing governments—but it is a practice fraught with evils, and is the parent of dangers to which we in this favored land have not yet opened our eyes. Benevolence is the duty of private individuals; protection of life, liberty and property is the only proper function of government. Consequently, the care of the poor, the ministrations to the sick, and the elevation of the downcast, should be left to private enterprise. Whenever it can be shown that a particular measure interests the welfare of all alike, it will then be proper to levy the cost of the undertaking upon all. Such a measure is the supply of pure water to every inhabitant of a city, where the natural sources are deleterious. Such a measure is the maintenance of quarantine against those foreign pestilences which can be kept out by such expedients. Such a measure is the cleaning of the streets and the privies, which all must use. But the attempt to protect citizens at the common expense against their local endemic diseases does not belong in this category, for the reasons previously given. That is the field for personal, individual responsibility, effort and expense. This is the position taken by the highest philosophy, and Dr. Billings would have done better for his own reputation if he had sided with Woolsey and Spencer. Had he done so, he would not have fallen into the inconsistency which he manifests, in common with the majority of sanitarians, when he argues (p. 35) that because health is part of a man's capital, it must be protected by the government, for the reason that the State undertakes to protect all property. We will

admit that health is a valuable possession, and that it should be protected just like all other property. Now the way a just government treats property is not by managing it for the benefit of its owners, but by providing equal security to all in the possession and use of their valuables. That done, every man is free to use his property as he pleases. He may give it away, or destroy it, or increase it, and no man shall interfere. In like manner the health of every man is his own property, and it is a possession of equal value to every man. Consequently, no government has any right to dictate, as our sanitarians desire, how a man shall use or abuse his health, nor has it any right to tax one man more than another for the protection of the collective health of the community.

It really seems almost a waste of time to dwell with such minuteness upon these elementary propositions; but the fact that a writer of such ability as Dr. Billings has failed to perceive their bearing, shows how much our sanitarians have to learn from philosophical thinkers and teachers, even though they be as obscure and unknown as President Woolsey, or Herbert Spencer, or John Stuart Mill. However, the public does not propose to be coerced by philosophers or by sanitary experts; consequently it is useless for either class to attempt the forcible realization of their opinions in practice. The only thing that can properly be done is to insist upon a conscientious presentation of the highest truths in science and in philosophy by those who devote their lives to research; for we may be confident that the advanced science and philosophy of to-day will supply the common creed of to-morrow. Every attempt to interfere with the orderly evolution of nature in these respects will only hinder progress, and will recoil injuriously upon its authors.

Passing to a consideration of the legal relations of physicians to the public in the matter of statistical returns, and registration of diseases, it is pleasing to find our author ranging himself on the side of justice in his affirmation of the obligation of the State to pay for all such service. The experience of New Hampshire, Connecticut and Minnesota, and of British cities which have undertaken a registration of infectious diseases, does not, however, reveal any practical difficulties in the way of fairly compen

sating physicians and others for their assistance in the matter. The only difficulty that can interfere grows out of the immoral unwillingness of so many people to pay for work which they desire to have done. In this disposition, it is to be regretted, that communities are too often encouraged by political doctors who hope to magnify their own importance by the unremunerated services of their non-official brethren, and by certain enthusiasts, bitten with a mania for statistics, for the sake of which they are willing to sacrifice honor, justice and everything else. In this connection it is noteworthy that the official bias of our author has in some degree overcome his usually candid disposition, a fact which is shown by his absurd notions (p. 46) that the compensation of physicians for services to the State "should be indirect, in the shape of certain privileges," such as "a voice in the selection of the health official or officials with whom they are to co-operate, or, some permanent and organized means of representation in the councils of the sanitary authority." In reply to this it is sufficient to remark that in this State, at least, the organic law expressly forbids the creation of any privileged class whatever. As for voice in the selection of the health officials, that is too unsubstantial a privilege to excite anything but laughter among the initiated, and as for representation in the sanitary councils, that is too empty and impracticable a consideration to be esteemed by any but the official classes. The vast majority of physicians are plain men who practice medicine, not for the sake of science, or for political influence, but for the sake of the shekels which they may thus honestly earn, and nothing else has any tangible value as a compensation for their labor. No lawyer would ever think of giving his services as a notary public for the privilege which he already possesses of voting at the primaries, or for the chances of some day becoming a judge. A voice in the selection of health officials and a representation in sanitary councils is already the property of the medical profession, and its value cannot be increased by any mere legal formula.

The concluding portion of the paper treats chiefly of the proper functions of the boards of health. The author admits that the legislation necessary for their establishment and guidance presents great difficulties. There is danger, he thinks, of conferring too much power by vague legislation and there is danger of too much

prolixity and rigidity if the health laws are made specific in their provisions. These difficulties are greatly over-rated by sanitary writers. They grow out of ignorance of the legitimate functions and limitations of government. The practical difficulties are largely caused by the hereditary inclination of legislators and public officials to intrude their supervision and authority into the private life of citizens. It was once thought right for the state to govern the consciences of men in all matters pertaining to religion. This primitive notion we have nearly outgrown; but the analogous superstition that the state must take charge of the health of its citizens, is exceedingly fashionable and will always be so while money and political position can be made by such work. When our legislators become willing to listen to the teaching of those philosophers who, like Herbert Spencer believe in a moral order as the basis of civil government, we shall not find it so difficult to secure sanitary legislation which will be simple and comprehensive alike. In this connection it is encouraging to note the action of the supreme court of Massachusetts, by which the right of trial by jury has been restored to the citizens of that State in cases of appeal from the decisions of the State board of health. The authority which had been thoughtlessly conferred virtually upon the secretary of the board, making him the supreme arbiter of the most important interests, was an act so completely opposed to the fundamental principles of free government that its abrogation by the supreme court should really be a matter of national thanksgiving.

The recent legislation, establishing a State board of health in Illinois and the national board of health in Washington, is duly noticed by the author. Our own State is credited with the possession of the most potent board in the country so far as its theoretical powers and privileges are concerned. As for their practical working, Dr. Billings shrewdly and correctly remarks that "among observant sanitarians there is a fear that if matters take the usual course, there will be a reaction and that the description of the course of public hygiene in England—viz., that it has consisted in taking three steps forward and two backward, will also apply here" (p. 57). Mere sanitarians may "fear" such a consummation but it will have no terrors for the

thoroughly scientific observer, for such is the universal law of all rational human progress. Enthusiasts rush wildly in advance, throwing out a disorderly skirmish line, behind which the cool-headed generals select an impregnable position to which all must retire when night puts an end to the combat.

With these remarks we must leave this very able paper, which, though perhaps not in all respects fully up to the high water mark of science and philosophy, will, if read with discrimination do a great deal of good.

After the introduction, the first paper is devoted to the subject of "Infant Hygiene." It is sufficient praise of this essay to note the fact that it is the work of Prof. A. Jacobi, the well-known writer and teacher and repository of all that is known about the care of children.

"Food and Drink," is the title of the next paper. It is written by Prof. James Tyson, of the University of Pennsylvania, and it forms an excellent summary of the teachings of physiology in this department.

Prof. Wm. R. Nichols, of Boston, Mass., writes on "Drinking Water and Public Water Supplies." This forms a valuable exhibition of what is known concerning the different kinds and sources of water that are used in different parts of the world. The subject of impurities and means of purification is very sensibly treated. The presence of microscopical forms of plant and animal life is not considered especially objectionable. The deleterious effects of sewage and other artificial causes of pollution seem to depend upon the degree of concentration rather than upon the quality of the impurity. As for the presence of specific "germs" of disease in water, the professor does not adopt any particular theory. He simply and correctly states that the weight of opinion inclines to the view that decomposing nitrogenous matter of organic origin is the most dangerous form of injurious matter. This, when derived directly from diseased bodies is, of course, the most concentrated and most virulent. When it has infected algous or fungous growths, they may also become capable of discharging virulent matters like those by which they were originally diseased. In this way such minute organisms may become associated with the propagation of dis-

eases dependent upon decomposition of specific organic matters which they did not primarily originate.

A paper on "Physical Exercise," is contributed by A. Brayton Ball, M.D., of New York. This is also a concise and useful summary of the physiology and pathology of muscular motion.

Arthur Van Harlingen, M.D., an eminent dermatologist, in Philadelphia, contributes a brief essay on "The Care of the Person." All very good. He advocates the establishment of public baths in our cities—a very desirable thing; but he neglects to remark that such luxuries should be provided by charitably-disposed citizens rather than by public taxation.

The great subject of "Soil and Water" is treated at length by Wm. H. Ford, M.D., of Philadelphia. The whole matter of sewerage is fully considered. Contamination of the soil by privies, and the remedies, are also passed in review. The author writes very sensibly of the relation which exists between certain diseases and certain conditions of the soil, air and water. The upshot of the immense number of observations and opinions which he has collected, but only partially analyzed, is not at all favorable to the so-called "germ theory." Nor can it be otherwise, for the only living germs concerned are the cells of the body. When inundated soils containing protoplasmic matter—whether of animal or vegetable origin is of secondary consequence—are exposed to heat and oxygen, the dead protoplasm decomposes. This detritus is dissolved in water; or, in a state of minute subdivision, may be transported by the air. By either vehicle it may find entrance into the liquids of the body. Bathing the cells of the body, these contaminated fluids will seriously modify the nutrition of those cells. If the quantity of impurity be not too great, the vital forces of the cells soon adjust themselves to the novel disturbance; but if the concentration of the poison exceed certain limits, the cells may pass into a specific condition of disease, or may succumb to new and extraordinary concurrences of external force. Thus viewing the subject, it is easy to see how "telluric emanations" in a temperate climate, where animal and vegetable refuse mingle in the soil, may produce typhoid fever *de novo*; how vegetable detritus alone, under analogous conditions, may produce malarial fever; how the con-

centrated animal and vegetable filth of a tropical city, festering in the long-continued heat of a southern summer, may produce yellow fever, etc., etc. Thus produced, the propagation of those diseases, like typhoid and typhus, which are dependent chiefly upon animal poison, becomes very easy. In typhus, the infection may, perhaps, be derived directly from the body of the patient. In yellow fever and in cholera the detritus of diseased cells seems to need farther decomposition or combination outside of the body before it can become infective. This is really the only germ theory that has any logical basis in facts. But the limits of this review will not permit further discussion of the subject.

Dr. D. F. Lincoln, of Boston, Mass., contributes the next paper, an exhaustive review of all that is known about "The Atmosphere." This is considered under four heads: I. Normal Components of Air. II. Impurities, Organic and Inorganic. III. Meteorology and Climate. IV. Ventilation and Heating. The essay treats of all these topics with encyclopædic fullness, forming a body of valuable information which will not admit of abstraction.

The first volume is concluded with an excellent essay on "Hospital Construction," by Francis H. Brown, M. D., of Boston, Mass.

(To be continued.)

BOOKS AND PAMPHLETS RECEIVED.

Transactions of the Minnesota State Medical Society, 1872, 1874, 1875, 1877, 1879.

Medical Society of New Jersey. Transactions, 1879.

Consumption and How to Prevent It. By Thomas J. Mays, M.D. Cl., pp. 89. 1879. New York: G. P. Putnam & Sons.

Memorial Oration in Honor of Ephriam McDowell, the Father of Ovariectomy. By Samuel Gross, M.D., etc. Cl., pp. 77. 1879. Published by the Kentucky State Medical Society.

Transactions of the Indiana State Medical Society, 1879. Cl., pp. 252.

Yellow Fever: A Nautical Disease. Its Origin and Prevention. By John Gamgee. Cl., pp. 207. 1879. New York: D. Appleton & Co. Chicago: Jansen, McClurg & Co.

Diseases of Women. By Lawson Tait F. R. C. S. Second edition. Thoroughly revised and enlarged. Specially prepared for Wood's Library. Cl., pp. 192. 1879. New York: Wm. Wood & Co. Chicago: W. T. Keener.

The Treatment of Diseases by the Hypodermic Method: A Manual of Hypodermic Medication. By Roberts Bartholomew, M.A., M.D., &c. Third edition. Enlarged. Cl., pp. 249. 1879. Philadelphia: J. B. Lippincott & Co. Chicago: Jansen, McClurg & Co.

Clinical Lectures on Diseases of the Urinary Organs, delivered at University College Hospital. By Sir Henry Thompson. Fifth edition. Cl., pp. 355. 1879. Philadelphia: Lindsay & Blakiston. Chicago: Jansen, McClurg & Co.

The Pathology and Treatment of Venereal Diseases. By Freeman J. Bumstead, M.D., LL.D. Fourth edition. Revised and enlarged by the author and Robert W. Taylor, A.M., M.D. Leather, pp. 835. 1879. Philadelphia: H. C. Lea. Chicago: Jansen, McClurg & Co.

System of Midwifery, including the Diseases of Pregnancy and the Puerperal State. By William Lersham, M.D. Third American edition, with additions by J. S. Parry, M.D. Leather, pp. 732. 1879. Philadelphia: H. C. Lea. Chicago: Jansen, McClurg & Co.

First Lines of Therapeutics: As Based on the Modes and Processes of Healing, as Occurring Spontaneously in Disease, and on the Modes and Processes of Dying, as Resulting Naturally from Diseases. By Alexander Harvey, M.A., M.D. Cl., pp. 278. 1879. New York: D. Appleton & Co. Chicago: Jansen, McClurg & Co.

A Ministry of Health, and Other Addresses. By B. W. Richardson, M.D., &c. Cl., pp. 354. 1879. New York: D. Appleton & Co. Chicago: Jansen, McClurg & Co.

Health Primer: The Skin and Its Troubles. Cl., pp. 94. 1879. New York: D. Appleton & Co. Chicago: Jansen, McClurg & Co.

Experimentelle Nachweis: Siner Freien Communication der Endolymphatischen und Perilymphatischen Räume des Menschlichen Orlabyrinthes, mit Extra Calynuthischen Intracramellen Räumen. By Dr. Weber Liel. 1879.

Atlas of Histology. By E. Klein, M.D., F.R.S., and E. Noble Smith, LL.D., C.P., &c. Part VII. Philadelphia: J. B. Lippincott & Co. Chicago: Jansen, McClurg & Co.

Early Medical Chicago: An Historical Sketch of the First Practitioners of Medicine, with the Present Faculties and Graduates Since their Organization, of the Medical Colleges of Chicago. By James N. Hyde, A.M., M.D.

Fourteenth Annual Report of the Chicago Hospital for Women and Children, for year ending March, 1879.

- Tobacco Poisoning, and Its Effects on the Eyesight. By A. W. Calhoun, M.D. Published from the Transactions of the Medical Association of Georgia.
- The Extirpation of the Ovaries for Some of the Disorders of Menstrual Life. By W. Goodell, A.M., M.D. Reprint from the transactions of the Medical Society of the State of Pennsylvania. 1879.
- (Die Pochenkrankheit, Heilbar.) Ueber Masmatische Anstecke—Ung Mit Specialler Bezeihung Auf die Entstehung, und das Wesen der Pochenkrankheit. Nebst Angeliie Eines Specilisch en Heilverfahrens Gegen de Pocknen von Dr. W. Hübner.
- Report of the Resident Physician of Bingham Hall, a Hospital for the Insane.
- Proceedings of the Association of Medical Officers of American Institution for Idiotic and Feeble-minded Persons, sessions 1878-1879.
- Medical Legislation, being the Annual Address before the State Medical Society. By Nicholas Senn, M.D., President. Reprint from the transactions of the Wisconsin State Medical Society.
- Minutes of the Medical Society of the County of New York, 1806-1878. Edited by A. E. M. Purdy, M.D. Part VI.
- Lunacy Reforms: Historical Considerations. By E. C. Seguin, M.D. Reprint from Archives of Medicine, October, 1879.
- Two Cases of Clonic Blepharospasms as Traumatic Reflex Neurosis. By F. C. Hotz, M.D. Reprint from *Amer. Jour. of Med. Sciences*, October, 1879.
- Transactions of the Massachusetts Medico-Legal Society. Vol. I. No. 2. 1879.
- Sylvester S. Bliss' Illustrated Catalogue of Surgical Instruments and Physicians' Goods.
- An Examination of the Usual Signs of Dislocation of the Hip; also An Inquiry into the Proper Mode of Procedure when Dislocation of the Hip is Accompanied with Fracture of the Femur. By Oscar H. Allis, M.D. Reprint from the transactions of the Medical Society of the State of Pennsylvania for 1879.

WE have to ask the indulgence of our friends for the delay of this issue, due in part to the unusual number of cuts, called for at a late moment, and in part to changes in the typographical department. We expect to issue the January number of this journal, on the first prox.

Selections.

THE PERIMETRIC DIMENSION SYSTEM; A GENERAL SYSTEM OF MEASUREMENT FOR URETHRAL, UTERINE, RECTAL AND OTHER INSTRUMENTS: AND AN ADAPTABLE METRIC GAUGE.* By Charles Hermon Thomas, M.D., Fellow of the College of Physicians, etc. of Philadelphia, Pa.

Three scales for grading and numbering urethral instruments are now in use in the United States, each scale having distinct characteristics. The differences between them are radical and material, and they are not accurately interconvertible. Of these conflicting standards the universally known French scale is doubtless usually preferred, and indications are not wanting which point to its general adoption. The English scale, formerly almost exclusively used, is purely arbitrary in character; has proved inaccurate in practice; is inconveniently limited in its range of sizes, and is rapidly falling into disuse; while the American scale, somewhat recently introduced — though undoubtedly an improvement on the English — is at least lacking in simplicity, and its claim to supplant the French has not been justified.

According to the French scale, each size in a set of catheters or bougies is derived from, and identical with the number of millimeters in circumference which such instrument actually measures — an arrangement at once rational and simple. Thus, while No. 1 is 1 M. M. in circumference, No. 2 is 2 M. M., No. 3, 3 M. M., and so on uniformly throughout.

The American scale, though like the French founded on the metric system, has for its gradations half millimeters in

* Exhibited to the Philadelphia County Medical Society, June 25th, 1879.

diameter, instead of whole millimeters in circumference. Its numbers, however, are consecutive in units, and therefore correspond neither with the figures which represent diameters nor circumferences. Practically it differs from the latter in that it does away with one in every three of the French sizes—a somewhat questionable improvement, though the only merit claimed for it; and in doing this a new and arbitrary series of numbers is introduced—a serious disadvantage. Thus, while No. 1 is 1 M. M. in diameter, No. 2 is 1.5 M. M., No. 3 is 2 M. M., and so on, with a widening disparity till No. 20 is reached, which measures 10.5 M. M. by the same method.

It will readily be conceded that the demand among those engaged in general scientific work for unity of standard in measures of length, capacity and weight, which has resulted in the wide-spread adoption of the metric system, has a practical basis. Nor will it be questioned that the various branches of the science of medicine have need of the improved methods and means of observation and experiment which have become common to allied sciences. In the sub-departments of urethral, gynecic and rectal surgery especially, there is urgent need for the establishment of a common standard of measurement and record of the dimensions of the instrument employed; and—no less important—by means of these of the calibre of the passages to which they relate.

A general system suited to this wide range of applications, is practicable, and an undoubted necessity—a system combining the requisites of simplicity, definiteness and convenience of use, together with universal scientific intelligibility. The attainment of this end requires

Fig. 1.



simply the abandonment of all conventional numbers, whether arbitrary or systematic, as indicative of size, and the adoption of actual circumferential or perimetric dimensions, expressed in terms of the metric unit.

This system is applicable to all specula and dilators, together with their related explorers and fixed cutting instruments, for whatever part designed — the male or female urethra, the rectum, vagina, cervix uteri, œsophagus, Eustachian tube, or the lachrymal duct.

In designating sizes and recording data by the perimetric dimension system, millimeters will naturally be used for the smaller instruments and passages, while for the larger, as rectal and vaginal, centimeters should be employed. The changed form of expression will then be, for example, 20 M. M. instead of No. 20, French catheter—a gain in explicitness with no loss of brevity; and in place of Sim's No. 1 vaginal dilator, as at present, its equivalent, 10 C. M.; or, 8 C. M. as the proper substitute for No. 10 of English rectal bougies; or, again, 30 M. M. as closely approximating the dimensions of No. 18 of the American scale.

A comprehensive plan of unification is thus afforded, based upon the best known standard; for, whatever may be the faults of the metric system for general mechanical purposes, it is perfect for surgical uses. Neither can objection be raised to it in this case, on the ground of infraction of established routine, as is done in regard to its introduction into medicine and pharmacy, for in surgery there is no generally accepted standard to be displaced. In fact, except in the case of the urethral instruments before mentioned, there has been no attempt to indicate actual dimensions of any kind in the numbering of surgical instruments; while the sizes of nearly all appliances in use are purely arbitrary, if not in many instances simply the result of accident.

While the proposed system of measurement is fixed and definite, it yet allows entire freedom for individual choice, on the part of the surgeon in the gradation of the sizes of instruments, both as regards their number and their relative dimensions. It includes and utilizes all scales by giving them a common nomenclature; being especially in accord with the French urethral

scale, however, for in this, though it is limited to certain fixed gradations, nominal number and actual size expressed in metric terms correspond.*

The importance of measurement by circumference or *perimeter*, instead of by diameter, is not to be overlooked, inasmuch as many instruments are irregular in outline, and therefore not susceptible of measurement by the latter method.

The adaptable metric gauge supplies a ready means for rendering the foregoing plan practicable, and thus securing the highest degree of definiteness and accuracy for purposes of record, comparison, and operative procedure. In illustration: During several years I have made somewhat frequent use of Otis's dilating urethrotome in obstinate and irritable stricture, and, though using at different times the best procurable makes of that admirable instrument, have found that a ready means of verifying or correcting its index was needed. One now in use, and an otherwise faultless piece of mechanism, being accurately measured over the knife in place, shows an excess of size over that registered of 4 M. M. An error like this, not recognized and provided against in an operation of such delicacy and gravity as that of Otis's for internal urethrotomy—in which the only hope of success depends upon strict accuracy and correspondence of measurements—may at any moment be the cause of serious mischief, or even of fatal results. Again, Ellinger's dilator for the cervix uteri has a seemingly perfect parallel motion; but when measured by the gauge shows conicity of 12 M. M., which is increased to 2 C. M., or more by pressure near the points when its sides are separated. Its failure to be retained when in use is thus accounted for. Or, an instance mentioned by a friend, a steel sound which had been looked upon as standard 32 French, proved upon measurement to be fully 39.5 M. M.—an enormous error.

The gauge is a simple appliance, mechanically similar to the glovers' measure, and consists of a narrow, flexible, measuring tape, graduated in centimeters and millimeters (Fig. 1), to which is attached a hand-piece, having a mortise for the passage of the

* The American scale, with its distinctive gradations, may be virtually reproduced by the same method, by making successive advances in size of 1.5 M. M. in circumference, as 1, 2.5, 4, 5.5, 7 M. M., etc.

tape. A sliding loop is thus formed (Fig. 2), within which instruments to be measured are placed.

Fig. 2.



The two ends of the gauge being drawn upon in opposite directions so as snugly to embrace the enclosed object, the dimensions of its circumference if cylindrical, or its perimeter if of irregular outline, are indicated by arrows placed opposite the point of beginning of the scale.

The material found best adapted for its construction is an extra-heavy bank-note or bond paper, the handle being stiffened with card-board. This paper is very flexible, strong, and durable, is readily printed in fine, but legible, divisions, bears all ordinary use without stretching or breaking, and is not perceptibly affected by atmospheric changes. In practice it answers well for all purposes, including measurements involving delicate cutting edges.

Accurate to a fraction of a millimeter, the gauge becomes an instrument of precision, adapted to ascertaining the perimeters of a great variety of forms, and to expressing their values in uniform terms. It has the special advantage of utilizing old appliances, for by it their equivalence under the general system may be at once determined.

Contrasted with the ordinary gauge-plate, the adaptable gauge will be seen to be possessed of important advantages. The former is capable of measuring cylindrical forms only, and as made, is often inaccurate and always very limited in its range of sizes. The adaptable metric gauge, on the contrary, beside being accurate, is practically unlimited in capacity; measures cylinders perfectly, and is equally well adapted to the measurement of instruments of irregular outlines, as urethrotomes, metrotomes, separable dilators, divulsers, folding specula, and the like. While the gauge-plate is difficult of verification, the correctness of the adaptable gauge may be instantly tested by comparison with any standard metric rule.

109 SOUTH EIGHTH STREET,
PHILADELPHIA, June 10, 1879.

CHARLES H. THOMAS, M. D.,

Dear Doctor: We are now using your adaptable metric gauge as a correct guide in the manufacture of urethral and dilating instruments. It has been particularly serviceable in enabling us to bring the measurement of bougies, catheters, and all urethral-cutting instruments to the point of absolute accuracy.

Thanking you for bringing the gauge to our notice, we would state that we have made arrangements to produce them, and should be most happy to furnish members of the profession with your very useful appliance gratuitously.

Your views in regard to a universal scale are so evidently correct that we are prepared to conform to them.

We are, very respectfully, yours,

J. H. GEMRIG & SONS.

They will be also furnished, without cost, upon application to Messrs. George Tiemann & Co., New York City; D. W. Kolbé & Son, Philadelphia, Pa; Sharp & Smith, Chicago, Ills.; or the American Metric Bureau, Boston, Mass.—From *Philadelphia Medical Times*. Revised, with additions, by the author.

ORIGIN OF PLANTS.—Cabbage grew wild in Siberia; buckwheat originated in Siberia; celery originated in Germany; the potato is a native of Peru; the onion originated in Egypt; tobacco is a native of South America; millet was first discovered in India; the nettle is a native of Europe; the citron is a native of Asia; oats originated in North Africa; rye came originally from Siberia; parsley was first discovered in Sardinia; the parsnip is a native of Arabia; the sun-flower was brought from Peru; spinach was first cultivated in Arabia; the pear and apple are from Europe; the horse chestnut is a native of Thibet; the quince came from Island of Crete; the radish is a native of China and Japan; the pear is supposed to be of Egyptian origin; the horse radish came from the south of Europe.

Summary.

Collaborators :

DR. H. GRADLE, DR. L. W. CASE, DR. R. PARK,
DR. R. TILLEY.

PATHOLOGICAL ANATOMY.

FALSE HERMAPHRODISM IN A WOMAN HAVING PASSED HER LIFE AS A MAN.—DRS. ARIGO AND FIORANI.—(*Revue Méd.*, Sep. 20, 1879, p. 357.)

The patient, named Pagetti, entered the Hospital Maggiore de Lodi, Aug. 12, 1878. Age, 68 years; stature, small; thick set, robust, with tolerably thick gray beard. On entering the hospital he was suddenly taken with a violent fever, with frequent and severe chills, delirium, dyspnoea, cyanosis, coma, and finally death in twenty-four hours.

Autopsy.—Head has virile aspect, bald on top, with gray hair on the sides and back of neck; nose, aquiline; face, oval; lips, chin, and upper part of neck supplied with somewhat thick beard, of gray color; neck robust; shoulders wide; chest developed; nipples small, without any appearance of mammary glands, as in woman. Abdomen a little prominent, adipose, regular, thighs rounded, legs muscular.

In examining the abdominal viscera, after having pushed back the intestines to get at the bladder, there was discovered, to the extreme surprise of all the assistants, a uterus, with two ovaries and the corresponding ligaments. The examination then became more attentive and minute.

On the exterior, the mons veneris, notably elevated and covered

with gray hair in considerable quantity. Lower down, a penis, the size of an ordinary thumb, nearly eight centimeters long, of the color and consistence habitual in old men, and terminated at its free extremity by a well-developed gland of regular form, and proportioned to the size of the penis, but destitute of a urethral meatus. Along the posterior surface, exactly in the site of the urethral canal, between the *corpora cavernosa*, a furrow, not covered with skin, but with a mucous membrane, rendered more consistent from exposure; this furrow extended just to the root of the penis, terminating in an opening of somewhat circular form. By the sides of this opening, and descending towards the perineum, two symmetrical folds, formed like the labia majora, covered externally by scattering hairs, and internally by a membrane more delicate than the skin, and resembling a mucous membrane. Taken as a whole, these folds might be considered as a scrotum, divided by a very strongly marked raphé, and containing atrophied testicles; but, on examining with care, they were clearly seen to be labia majora, and on separating them a membrane was found between, without any orifice, intercepting all communication with the internal parts.

In the interior was found a uterus of the size and form of the virgin uterus, the body and neck being well formed; the broad ligaments, the Fallopian tubes, the ovaries, were in the ordinary condition of virgins, and it was not seen whether or not there existed *corpora lutea*, indices of former ovulation or ovules, and in what state they were.

The bladder having been opened, a bougie was passed through the neck and came out at the opening at the root of the penis. Incision of the vagina, behind the bladder, uncovered the cervix uteri, small, cylindrical, of normal size; another bougie was then introduced into the vaginal canal, which was of the ordinary length and capacity. The bougie passed out of the same orifice as the former one, after having struck against the groove which separated the two elevations forming the labia majora, and being bent a little upward.

The measure of the pelvis was 22 centimeters for the bis-iliac diameter, 9 for the bis-ischiatic, and $10\frac{1}{2}$ for the transverse.

She had all the appearances of a man, but was indeed a bearded

woman, without breasts, with a greatly developed clitoris. Nothing was known of her youth, whether menstruation or anything approaching it had ever taken place, or whether her sexual life was that of a man or woman.

PRACTICAL MEDICINE.

ARTIFICIAL DIGESTION.—MM. Vulpian and Mourrut. (*Archiv. gén. de Méd.*, October, 1879, p. 490.)

In presenting to the *Acad. de Méd.* a paper by M. Mourrut, entitled, *Recherches sur les Digestions Artificielles*, M. Vulpian communicated a note on the action of the digestive ferments employed in the treatment of dyspepsia. Experiments proved that different samples of pepsine do not have the same degree of digestive power, and that the addition of alcohol to an acidified pepsine or of the natural gastric juice retards digestion. Hence the conclusion that wines and elixirs of pepsine should not be used. M. Vulpian also showed that diastase and pancreatine, mixed with natural or artificial gastric juice are far from exerting upon amylaceous matter so energetic an action as when mixed in pure water with these substances. This fact of the influence of acid media upon these ferments was known, but it remained to be seen, if after having been in contact with the gastric juice in the stomach they would recover all their intensity of digestive action on entering the duodenum. This is the question which M. Mourrut proposed to solve. After having obtained negative results on adding to these ferments a few drops of hydrochloric acid, M. Mourrut neutralized them exactly. The diastase then recovered its activity and rapidly saccharified the starch which it had not modified before. The pancreatine, on the contrary, did not recover its saccharifying properties. Experiments relative to the peptonising action of pancreatine were less clear; but point to a certain extent in the same direction. Other experiments led M. Mourrut to believe that if alcohol does not prevent the action of pepsine upon azotized substances, it retards it, and finally that alcohol also retards the digestive action of diastase and of pancreatine.

JABORANDI IN YELLOW FEVER.—Dr. Giralt. (*Cron. Med. Quirurg de la Habana, and la France Médicale*, Sept. 27, 1879.)

During a practice of twenty-five years, the author has remarked that nearly all the cases of yellow fever, which from the beginning were accompanied by abundant sweating, terminated favorably, even when they passed to the second stage. The ideal of therapeutics then was in this malady, to have a medicament capable of provoking in this pathologic stage an abundant and prolonged perspiration. Unfortunately this medicament was lacking when the author collected his earlier cases, and it is only recently that this vacancy in the *materia medica* has been filled by the discovery of jaborandi.

Dr. Giralt regards yellow fever as an infectious disease or as an intoxication in which it is necessary to drive out the deleterious principle by the eliminatory organs—sudoriparous glands, kidneys, etc. One of these means of elimination is interdicted, since the secretion and emission of urine are suspended, but the two others remain open and it is precisely here that jaborandi has a double action upon them by the production of transpiration and salivation.

Dr. Giralt prescribed jaborandi for the first two cases of yellow fever he had since the popularization of this remedy. Dr. Monteresi, his pupil, has also used it and their patients became convalescent on the fifth day.

Jaborandi should be given from the invasion of the fever and continued throughout the first period and a part of the second, in the dose of 1. gm. in the twenty-four hours.

SURGERY.

INDICATIONS AND CONTRA-INDICATIONS FOR OPERATIONS ON SUBJECTS AFFECTED WITH CONSTITUTIONAL DISEASES.—M. Verneuil. (*La France Méd.*, Sept. 27.)

The following is the author's *résumé* of a paper read at the 6th meeting of the International Congress of Medical Sciences at Amsterdam.

1st. Surgical operations are not formally contra-indicated in

subjects suffering from constitutional diseases; they are even under these circumstances often permitted, frequently useful, and sometimes indispensable.

2nd. Their prognosis is always much more serious than in healthy individuals; it is more uncertain, more difficult to establish, nothing being able to make us judge in advance whether the influence will be good or bad, which the operation will exercise on the general disease, any more than the manner in which this disease will react upon the local reparative process.

3rd. The prognosis differs moreover, according to the different constitutional diseases, and to the individual cases; it varies further, according to the form which it affects, the degree, and principally according to the alterations, more or less extensive and profound, undergone by the organic humors and solids.

4th. The danger inherent to the diathesis is inconsiderable when the latter is still in the state of dyscrasia, it increases notably when appreciable chemical or histological lesions appear; it becomes extreme when the large viscera, liver, kidneys, spleen, heart, lungs, present advanced lesions, as sclerosis, steatosis, amylosis, phlogosis; or when they are invaded by pathological products, special to certain diathetic states as tubercles, gummata, carcinoma, and divers neoplasms.

5th. Diathetic subjects should not be deprived of the benefits of surgical intervention, even when it is perilous. The physician should endeavor to attenuate the gravity of the prognosis, and to assure the success of the operation. He will attain this often by bringing to bear the greatest care in choosing the most proper time, the best method, the most efficacious dressing, and above all by instituting during and after the operation, and even before, if possible, a hygienic, dietetic and pharmaceutic treatment, specially adapted to the constitutional malady.

6th. To establish solidly the indications and contra-indications for operations, to calculate with some precision the chances of success or otherwise, to decide whether to operate or not, the physician should understand thoroughly the pathogeny, the pathology, the natural evolution, the terminations, and the medical treatment of the constitutional disease. This knowledge, which all surgeons do not possess sufficiently, perhaps, prevents

more bloody operations than it incites, and gives greater confidence than is generally had in the efforts of nature, seconded by a relatively mild therapeutic treatment.

7th. A conscientious consideration of the immediate or remote result of operations on diathetic subjects, is of a nature to dissipate many of the illusions regarding the puissance of the surgical art. It is painful to say it, but truth obliges it, complete and durable triumphs are rare. Without doubt many operative successes are obtained, but no therapeutic success. We suppress a manifestation of the diathesis or an intercurrent affection, but many times the constitutional disease gains therefrom an intensity and rapidity. Many a scrofulous or cancerous patient would live longer if they remained under medical treatment instead of passing through the hands of the operator.

8th. It is just to add that to be more often palliative than curative, the operations in question are not less sometimes of great utility; in extreme cases they may prolong life, render it less cruel, and for the patient at least leave a chance for hope. In cases less grave, and when the constitutional disease may be successfully treated, the operation favors the cure by gaining time, in suppressing an immediate cause of danger, and in leaving the field more free for medical treatment.

RUSH MEDICAL COLLEGE.—CHICAGO, ILL., Dec. 1, 1879.—
A concours for the lectureship on gynæcology, in the spring course of lectures in this college, will be held January 6th, 1880. Applications for admission thereto received from "regular" physicians only. All who desire to compete for the position are requested to communicate with the secretary, who will assign subjects and furnish any desired information relating to the conditions of the concours. At the last spring session of lectures in this college, 148 students were enrolled. Already 113 have matriculated for attendance upon the lectures next spring.—
J. H. ETHERIDGE, *Secretary*.

Obituary.

IN Ashton, on Tuesday, October 28th, of heart disease, D. H. Spickler, M.D., aged 49 years.

Dr. Spickler was born in Middleburg, Franklin county, Pa., March 18, 1830, and came west sometime during the year 1853. He was graduated in his profession at Rush Medical College, Chicago, in 1857, soon after which he entered into partnership with Dr. Hewitt, of Franklin Grove, in the practice of medicine. The partnership was eminently successful and continued until sometime during the year 1869, when he entered into relations with P. C. Rooney, in connection with a drug store. In 1871 he left the drug business and became editor and proprietor of the Franklin Grove *Reporter*, which he conducted with much energy and ability for four years. Soon after disposing of the *Reporter* he purchased the Mendota *News*, which flourished under his able management for two years, when he moved to Ashton and again entered the practice of medicine.

The doctor was a man of culture and of rare abilities. Possessing the finest memory, combined with energy, application and a love for books; he became a perfect storehouse of knowledge, and upon all subjects conversed with ease and freedom in his own inimitable style. In the practice of his profession he kept pace with the times. His style as a writer was peculiarly his own. Terse, clear and pointed, he never left his readers in doubt as to his meaning. He stripped his subject of all superfluities, and expressed his thoughts with frankness and independence in a few concise, often humorous, sentences.

But intellect is not all of man; there is something else that enshrines his memory in the heart of his fellow man, and per-

petuates his influence long after the portals of the grave have closed over all that is mortal. There are noble impulses that spring from the soul, and like streams of pure water, flow out to gladden all who come within the circle of their influence. The doctor was no stranger to these impulses, as his strict integrity in business and his well known generosity testified. He was the friend of the poor, and during the war attended free of charge the families of those who went to the front. He was also a man to be admired for his social qualities, and the news of his sudden death has thrilled every household and saddened every heart with the feeling that a friend has been lost.

At a meeting of the senior class of the Chicago Medical College, held Nov. 15, 1879, the following resolutions were adopted in relation to the decease of Mr. Brown.

Whereas, We have heard of the sudden death of Mr. A. S. Brown, a member of the senior class of the Chicago Medical College; therefore,

Resolved, That we sincerely regret the early death of our esteemed classmate, and deeply sympathize with his friends and relatives in this sad affliction.

Resolved, That we recognize in the life of our departed classmate a character of manliness and integrity worthy of the highest regard.

Resolved, That his customary seat among us in the senior lecture-room be duly draped, in memory of his departure.

Resolved, That copies of these resolutions be forwarded to the friends of the deceased, and also to the CHICAGO MEDICAL JOURNAL AND EXAMINER, and *Vidette*, for publication.

Committee for the class, { J. E. BUMSTEAD,
G. W. MASON,
J. M. G. CARTER.

ANNOUNCEMENTS FOR THE MONTH.

SOCIETY MEETINGS.

Chicago Medical Society—Mondays, Dec. 1 and 15.

West Chicago Medical Society—Mondays, Dec. 8 and 22.

CLINICS.

MONDAY.

Eye and Ear Infirmary—2 p. m., Ophthalmological, by Prof. Holmes; 3 p. m., Otological, by Prof. Jones.

Mercy Hospital—2 p. m., Surgical, by Prof. Andrews.

Rush Medical College—2 p. m., Dermatological and Venereal, by Prof. Hyde; 3 p. m., Medical, by Dr. Bridge.

Woman's Medical College—3 p. m., Diseases of the Chest, Prof. Ingals.

TUESDAY.

Cook County Hospital—2 to 4 p. m., Medical and Surgical Clinics.

Mercy Hospital—2 p. m., Medical, by Prof. Hollister.

WEDNESDAY.

Chicago Medical College—2 p. m., Eye and Ear, by Prof. Jones.

Rush Medical College—3:30 to 4:30 p. m., Diseases of the Chest, by Dr. E. Fletcher Ingals.

THURSDAY.

Chicago Medical College—2 p. m., Gynæcological, by Prof. Jenks.

Rush Medical College—3 p. m., Diseases of the Nervous System, by Prof. Lyman.

Eye and Ear Infirmary—2 p. m., Ophthalmological, by Dr. Hotz.

Woman's Medical College—3 p. m., Surgical, by Prof. Owens.

FRIDAY.

Cook County Hospital—2 to 4 p. m., Medical and Surgical Clinics.

Mercy Hospital—2 p. m., Medical, by Prof. Davis.

SATURDAY.

Rush Medical College—2 p. m., Surgical, by Prof. Gunn.

Chicago Medical College—2 p. m., Surgical, by Prof. Isham; 3 p. m., Neurological, by Prof. Jewell.

Woman's Medical College—11 a. m., Ophthalmological, by Prof. Montgomery; 2 p. m., Gynæcological, by Prof. Fitch.

Daily Clinics, from 2 to 4 p. m., at the Central Free Dispensary, and at the South Side Dispensary.

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